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A comparison of the Navy and the Air Force budgeting and execution process for Aviation Fuel (AVFUEL)

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A Comparison of the Navy and the Air Force Budgeting and Execution Process for Aviation Fuel (AVFUEL)

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December 2006

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A COMPARISON OF THE NAVY AND THE AIR FORCE BUDGETING AND EXECUTION PROCESS FOR AVIATION FUEL (AVFUEL)

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Submitted in partial fulfillment of the requirements for the degree of

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from the

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ABSTRACT

This research project provides background and explores issues related to management of Aviation Fuel (AVFUEL), Cost Per Flying Hour (CPFH), and the overarching Flying Hour Programs (FHP) for the Navy and the Air Force. Due to the variables used in the CPFH formulation and the complexity of flying hour budget formulation and execution, each armed service uses somewhat differing procedures in managing the FHP. This research focuses primarily on aircraft flying hours, and specifically the management of Aviation Fuel (AVFUEL). This research provides an overview to explain how the CPFH is used as well as analysis of the tasks of monitoring and managing the FHP based on the continuous flow of execution information from operating units. Also provided is a detailed evaluation of the CPFH concept in practice and a description of the structure used for each service, comparing the two. The research project focuses on the importance of management and decisions made at the Air Type Commander (TYCOM) and Major Command (MAJCOM) levels. The project reviews the Air Force process of FHP management centralization, in part to see whether there are lessons from the Air Force approach that may be applicable to improving FHP formulation and execution in the Navy.

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LIST OF ACRONYMS

ACC	Air Combat Command
ACES	Aviation Cost Evaluation System
AFB	Air Force Base
AFCAIG	Air Force Cost Analysis Improvement Group
AFM	Aviation Fleet Maintenance
AFMC	Air Force Materials Command
AIRPAC	Naval Air Forces, Pacific Fleet
ASKIT	Aviation Storekeeper Information Tracking System
AVDLR	Aviation Depot Level Repairables
AVFUEL	Aviation Fuel
BES	Budget Estimate Submission
BOR	Budget OPTAR Report
BRAC	Base Realignment and Closure
BuNo	Bureau Number
CJCS	Chairman Joint Chief of Staff
CNAL	Commander Naval Air Forces Atlantic
CNAP	Commander Naval Air Forces Pacific
COCOM	Combatant Commander
COMPACFLT	Commander Pacific Fleet
CONUS	Continental United States
CPFH	Cost Per Flying Hour
CPH	Cost Per Hour
CRA	Continuing Resolution Authority
CRIS	Commander's Resource Integration System
CS	Consumable Supplies
DESC	Defense Energy Support Center
DFAS	Defense Finance and Accounting Service
DLR	Depot Level Repairables or Aviation Depot Level Repairables
DO	Director of Operations

DOD	Department of Defense
DODAAC	Department of Defense Activity-Address Code
EEIC	Element of Expense Investment Code
FAS	Fuels Automated System
FHCR	Flying Hour Cost Report
FHP	Flying Hour Program
FMB	Financial Management and Budgeting
FMBP	Directorate of Budget Programs
FY	Fiscal Year
FYTD	Fiscal Year to Date
FYDP	Future Year Defense Plan
GAO	Government Accounting Office
GPC	Government Purchase Card
GWOT	Global War on Terrorism
IMA	Intermediate Maintenance Activity
JPG	Joint Programming Guidance
LG	Logistics Group
LRS	Logistics Readiness Squadron
MAJCOM	Major Command
MDS	Aircraft Mission Design Series
NAVAIR	Naval Air Systems Command
NMS	National Military Strategy
NMSD	National Military Strategy Document
NSAWC	Naval Strike and Air Warfare Center
OAC	Organizational Accounting Code
OB	Operating Budget
OBAN	Operating Budget Accounting Number
O&M	Operations and Maintenance
OMB	Office of Management and Budget
OPNAV	Office of Chief of Naval Operations
OPTAR	Operations/Operational Target
OPTEMPO	Operations Tempo

OSD	Office of the Secretary of Defense
PBD	Program Budget Decision
PDA	Personal Digital Assistant
PE	Program Element
PEC	Program Element Code
POM	Program Objective Memorandum
PPBES	Planning, Programming, Budgeting, and Execution System
RCCC	Responsibility Center Cost Center
REMIS	Reliability and Maintainability Information System
SAF/FM	Secretary of the Air Force (Financial Management)
SFOEDL	Summary Filled Order Expenditure Difference Listing
STRIKE	Software for Targeting Requirements, Information and Kinetic Effects
TACAIR	Tactical Aircraft
T/M/S	Aircraft Type Model Series
TYCOM	Type Commander
UIC	Unit Identification Code
UTE	Unit Training Rate
WRDCO	Wing Refueling Document Control Officer

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I. INTRODUCTION

A. BACKGROUND ON THE FLYING HOUR PROGRAM

This research project provides background and explores issues related to management of Aviation Fuel (AVFUEL), Cost Per Flying Hour (CPFH), and the overarching Flying Hour Programs (FHP) for the Navy and the Air Force. Due to the variables used in the CPFH formulation and the complexity of flying hour budget formulation and execution, each armed service uses somewhat differing procedures in managing the FHP. This research focuses primarily on aircraft flying hours, and specifically the management of Aviation Fuel (AVFUEL). This research provides an overview to explain how the CPFH is used as well as analysis of the tasks of monitoring and managing the FHP based on the continuous flow of execution information from operating units. Also provided is a detailed evaluation of the CPFH concept in practice and a description of the structure used for each service, comparing the two. The research project focuses on the importance of management and decisions made at the Air Type Commander (TYCOM) and Major Command (MAJCOM) levels. The project reviews the Air Force process of FHP management centralization, in part to see whether there are lessons from the Air Force approach that may be applicable to improving FHP formulation and execution in the Navy.

1. Budgeting Process

Flying Hours is a centrally managed program (by MAJCOM or TYCOM). This means the money is a "fenced" pot of money and cannot be moved by a Wing or Squadron without the consent of the MAJCOM or TYCOM flying hour commander. The centrally managed program has an administrative "floor" limitation, which means no less than the amount provided can be spent on the flying hour program. The flying hour funding is typically distributed to the Wings and Squadrons incrementally (i.e., seven to nine months up-front, then month by month as needed). "During the execution of FHP funds, several opportunities exist to shift or reprogram FHP dollars within each step of the decision chain" (Keating and Paulk 1998, 31). Both the Navy and Air Force must constantly justify requirements to determine if sufficient funds will be available to fly their annual programs, and report accurate information in a timely fashion to the Command level. A focus of our research will center on this incremental process in an effort to conclude if this is in fact a "best practice." Below is an excerpt from Keating and Paulk's Naval Postgraduate thesis relating to reprogramming of funds during the resource allocation and execution processes.

> Reprogramming is designed to give operational and financial Commanders increased flexibility to meet unforeseen program changes that may occur during budget execution. Moving funds within one appropriation account is authorized as long as the funds remain within specific program elements for which they were appropriated and within the authorized reprogramming threshold and other congressional requirements. However, reprogramming FHP funds may create problems and cause future under-funding as budget analyst often perceive reprogrammed money as excess funds not required for the FHP.

The incremental process may be a contributing factor for the requirement to reprogram funds because the Squadrons and Wings are forced to live within a seven-month "funding box." This phasing of funds requires flying hour analysts to jump through hoops to reprogram funding to meet their quarterly flying hour targets and short notice Command taskings.

2. Overview of the CPFH Program

The purpose of the budgeting process for the flying hour program is to ensure dollars are allocated to the proper Department of Defense (DoD) programs for each services projected requirements.

> The CPFH concept, although in existence as far back as 1962, catapulted to the forefront of O&M [Operations and Maintenance] funds management in the early 1990s as a result of the Defense Management Review and downsizing of budgets (Rose, 1997).

The CPFH concept for DoD aircraft is currently used by both the Navy and the Air Force for the budgeting and allocating O&M costs. This includes every Squadron and airbase that is flying DoD aircraft, and is the foundation for the planning of O&M funding for those Squadrons and airbases. "Good operation and maintenance skills are important in a Wing's flying hour program; equally important though, is a successful cost-per-flying-hour program" (Wiley and Dick 1997, 17). The significance of the flying hour program is expressed in Rose's summary on CPFH factors, "Flying hour program funding based on CPFH factors represents a large percentage of a MAJCOM's and Wing's O&M budget and provides funding for the core mission of the Air Force" (Rose 1997, 9). This is also true for the Navy's flying Squadrons and Wings as well.

> The FHP represented more than $3.2 billion of the Navy's FY2000 O&M, N appropriations. Forty-eight percent of the FHP is allocated to the Commander Naval Air Forces Pacific (CNAP), and the majority of the remainder is allocated to the Commander Naval Air Forces Atlantic (CNAL). CNAP and CNAL are the two active duty Air Type Commanders for the Navy" (McCafferey and Jones 2001, 423).

The purpose for this research lies in the basic concept of a CPFH. "Cost Per Flying Hour is a metric used to estimate the costs of fuel, consumables, and depot level repairables (DLR) to operate a particular weapon system (aircraft) for a one-year period" (Rose 1997, 4). More recently, the government purchase card has been included as a factor in the flying hour program. "Flying hours are the basic element for measuring aircraft usage to train aircrews for wartime taskings" (Rose 1997, 4). "The basis for flying hour funding is the number of programmed hours multiplied by the projected cost per flying hour rate" (GAO 1999), or (*CPFH = Total Costs ÷ Total Hours Flown*). The cost per flying hour rate is what drives the development of the required level of funding for each T/M/S, providing this information has come from normal operating conditions and without unforeseen abnormalities in the execution. An example of this is from the FY 2003 Budget Estimates from the Office of the Secretary of Defense (OSD) reports, "The Air Force fully funds a flying hour program of 1.3 million flying hours at levels commensurate with historic cost growth to ensure aircrews of the world's premier air force receive training crucial to combat readiness" (DoD 2002).

Currently, the Navy and the Air Force budget for flying hours based on the "sortie based planning method." This method records single launches and landings for each flying mission. The total hours required for all sorties determines the number of hours used during the budgeting process.

3. Importance of the CPFH Program

The flying hour program is a focal point of the President's budget. Once the budget is approved by the President, it is then sent to the Congress for authorization and appropriation. Each service submits its FHP budget requests, or what is also known as their detailed Budget Estimate Submission (BES), independently**.** These requests are then forwarded to the Office of the Secretary of Defense (OSD) before being submitted to Congress for approval. After the defense appropriation bill has been approved by Congress, it must be signed by the President to become law and to initiate the process of budget execution.

It is obvious from the Base Realignment and Closure (BRAC) committee report from the summer of 2005, and the ongoing drawdown of officers and enlisted personnel that the Air Force is going to have some manning issues. This reduction is scheduled to continue from 2007 to 2011 and will have an obvious impact with forecasted operations tempo (OPTEMPO). This issue may also prove critical if there is an increases in the number of flying hours for the coming fiscal years.

The common theme within the aviation communities of both the Navy and the Air Force is to reduce flying hour costs. An important part of the process begins with the collection of the CPFH execution data from the operating units and continues with the development of an operational flying hour program and budget based on that data. The importance of the CPFH program is understood when these projections are not accurate and the only remaining option is for the operating units to park their aircraft and stop flying their missions due to improper planning. The focus for everyone involved, from the FHP manager down to the aircrew members onboard the aircraft, is to accomplish the mission up to the last day of the fiscal year.

The FHP process may be complicated and difficult to understand, but understanding and managing the actual CPFH rates from operating units is much easier to comprehend. The main challenge is usually obtaining accurate and timely information from the units, something that is very important for the CPFH concept to work. The responsibility of collecting and processing the CPFH data rests at the TYCOM level for the Navy and at the MAJCOM level for the Air Force. Effectively managing and tracking CPFH costs has now become the foundation of the budget process for the Navy and Air Force FHP. The FHP allows for continuous monitoring of unit funding execution. The FHP also makes it possible to review financial adjustments and to predict possible outcomes for the current and future fiscal years.

The program managers, the comptroller, and the operations officers use the CPFH data collected from the operating units to determine and validate the unit's requirements. These managers use the CPFH reports to ensure the operating units are executing as planned, and staying within the current budget and projected hours. The CPFH data is collected from the operating units at the end of each month's reporting period and compared to what was projected for the unit at the beginning of that reporting period, and for the fiscal year (FY). The Navy and Air Force FHP program managers' focus will be the allocation and execution of each unit's CPFH, ensuring that they are not over-obligating, and that they are staying within their Operating Budget (OB). The CPFH report will assist these program managers in developing and planning for what the FHP requirement will be for both funding and flying hours and for each particular unit by Type/Model/Series (T/M/S).

4. CPFH Concept for Each Component

The CPFH concept is comprised of three major components: AVFUEL, consumable parts, and repairable parts. These components are used to calculate the overall CPFH for a particular T/M/S. This applies to both the Navy and Air Force. These three components are provided below (Table 1) to explain the labeling differences between services. Understanding how these components of the CPFH relate to aviation cost is essential for the successful management of the FHP program.

Service	Aviation Fuel	Repairable Parts	Consumable Parts
Navy	Aviation Fuel (Fuel)	Aviation Depot Level Repairables (AVDLRs)	Aviation Fleet Maintenance (AFM) & Contract Maintenance (FW)
Air Force	Aviation Fuels (AV Fuels)	Depot Level Repairables (DLR)	Consumable Supplies (CS) & Gov't Purchase Card (GPC)

(Source: Created by authors)

Table 1. The Components of the CPFH Program by Service

The most difficult of these components to manage are the Repairable Parts, or Aviation Depot Level Repairables (AVDLR). The Government Accounting Office (GAO) defines the repairables as "parts that can be repaired at a maintenance facility and are used in direct support of aircraft maintenance" (GAO 1999, 8). AVDLRs represent the largest portion of the FHP funding due the high costs associated with the repair and return of these components. Although AVDLRs are expensive and may drive the CPFH up very quickly, trends in each T/M/S can still be tracked to assist the program managers with projecting their budget and required flying hours.

The most important and difficult part of this projecting process is for the program managers to be able to determine what costs are trends and what costs are nothing more than abnormal spikes in the CPFH. An example would be the cost associated with replacing a helicopter's main gearbox, or transmission, which is the same component only with different nomenclature depending on the T/M/S. This example will use the main gearbox. The cost associated with the removal and replacement of a main gearbox is very expensive and will show an increased CPFH, as soon as this maintenance action is taken. The managers are also aware that each of these particular main gear boxes are good for a certain number of flight hours before they are normally required to be removed and replaced, barring any unforeseen problems that would lead to early removal. Based upon this information, the program manager can then see a trend of costs associated with the removal and replacement of the main gearbox.

Obviously, the key is for the program manager to know when a removal and replacement is not a planned maintenance evolution. This requires the program managers to be involved at the lowest levels of obligations, all the way down to the flight line where the maintenance actually occurs. Determining if the costs are a normal trend or simply an abnormal spike is the basis for AVDLR validity of the CPFH data. This ability to determine trends in the CPFH is vital to the success of the FHP in relation to projecting current and future requirements.

As referenced earlier, the importance of the operating units not over-executing their FHP budget is just as important as a program manager having to ensure the operating units are not under-obligating their budgets and flying hours. In most cases, this is due to poor budgeting projections by the program managers, or from overestimating the requirement. When operating units are only allowed to operate within their FHP budget restraints and associated flying hours, other units can suffer when funds are not properly allocated. An example of over estimating the CPFH for a particular T/M/S would be a reduction in the aircraft inventory. Often the projected requirements are very difficult and can be a shot in the dark when there are reductions in aircraft inventory. These challenges are amplified when aircraft are lost in combat, some are reaching the end of their service lives, and aircraft are decommissioned. This same difficulty in determining the projected CPFH requirement can also be linked to the aging of the service's aircraft. These changes in the aircraft inventory will usually lead to an increased availability of parts for the remaining aircraft of the same T/M/S, not only from the retired aircraft itself, but also from the increased availability from the supply system.

Often, the number of the maintenance personnel assigned to an operating unit does not adjust as quickly as the number of aircraft in the inventory, thereby increasing the ratio of maintenance personnel per aircraft. At times, the ratio of maintenance personnel per aircraft could be more or less, depending on the service's ability to manage their manpower requirements. The same analogy could be used for the addition of new aircraft, or modifications to existing aircraft within the fleet. Unfortunately, there are not always experienced personnel at the maintenance levels of these new aircraft. There is usually a learning curve associated with the implementation of new or updated aircraft into the fleet and the program managers must be aware of these factors.

Analyzing the CPFH data down into each component is necessary to determine the true cost of operating a FHP. The costs associated with consumable parts, or Aviation Fleet Maintenance (AFM), is often overshadowed by the high unit costs of AVDLRs. AFM costs make up a significant part of the FHP budget and are an important component of the CPFH concept. The GAO defines consumables as "non-repairable supply items used by maintenance personnel in direct support of aircraft maintenance" (GAO, 1999). These items include aviation components disposed of after its use and one-time use items not able to be repaired once they are used. These components are discarded once it is removed and a new component is installed in its place. Examples of the some components that are related to AFM costs include nuts, bolts, screws, washers, lights, wiring, paints, rags, common hand tools, etc. An important aspect of the consumable items a program manager must always be aware of is often the costs associated with the removal and replacement of an AVDLR item will also cause an increase in AFM CPFH as well. Usually, when a repairable part is removed, many consumable items are replaced as well. Therefore, the program manager has to reconcile the two CPFH components and determine if these costs are linked to one another or an independent spike. As with AVDLRs, the program managers must constantly monitor the execution of the AFM CPFH all the way down to the flight line, where the maintenance usually occurs.

The third component of the CPFH factors is aviation fuel, or AVFUEL. Aviation fuel is “the cost of fuel purchased to operate an aircraft” (GAO, 1999). When a program manager first evaluates the AVFUEL CPFH, usually the perception is that the AVFUEL cost should be the only true cost of the FHP. “AVFUEL is the fuel used during flight and the factor is expressed in gallons per hour, which is converted into a dollar per hour factor based on DoD established prices for each fuel type” (Rose Jr., 1997). The perception is that managing the CPFH for aviation fuel should be relatively easy, given the gallons used by an aircraft and the cost of each gallon that was used during the flight. This is not always the case, matching the hours flown with the gallons purchased is a huge undertaking.

Part of what makes managing AVFUEL CPFH challenging is the different costs an operating unit may incur during the execution of its flying hours. For example, AVFUEL costs are different if the aircraft is fueled on a military installation as opposed to fueling at a civilian airport. AVFUEL at a civilian airport will be significantly higher than at a US military installation.

Another challenge with the management of the AVFUEL CPFH, is the submission of the actual gallons purchased by an operating unit. At times, an operating unit may purchase aviation fuel from other U.S. Military bases within the Continental United States (CONUS), which may be controlled by a different branch of service. Retrieving the actual gallons purchased in a timely manner may be challenging.

A related problem is when an operating unit deploys to another country to conduct annual training operations. The operation can be fully budgeted and known to be a normal training requirement and planned for in advance. The FHP program manager must coordinate with the host country to ensure funding is in place prior to the beginning of the exercise, by providing a funding document through the country's U.S. Embassy. Again, retrieving the actual gallons purchased, the total hours flown, and the actual costs for AVFUEL after the exercise is completed may be challenging.

The deployment of almost any T/M/S will usually have a higher CPFH due to the high OPTEMPO of the deployment. The increase in hours flown and the CPFH can be seen increasing as the flying hours increase. This cost will continue to increase the more the aircraft are flown, by using the parts at a faster rate than when flying normal operation in CONUS. However, the opposite seems to happen when the flying hours increase over time, the CPFH seems to go down during high OPTEMPO flying. If the aircraft are flying the required missions and not parked on the ground, then the maintenance personnel on the ground are not working on the aircraft and subsequently driving up the CPFH.

> An unavoidable problem is over-execution of program funding due to non-recurring expenses in support of current operations (Operations Enduring Freedom/Iraqi Freedom), along with escalating maintenance-related costs, necessitates closer scrutiny of the budgeting process. Both in the areas of light operations and aircraft maintenance, historic budget shortfalls required creative cash management practices to support operations adequately. The necessity to fulfill operational requirements despite an inadequate funding level resulted frequently in program managers ignoring long-term ramifications to satisfy current needs. This practice merely exacerbated the budgeting and execution problems experienced by the program in follow-on fiscal years. Consequently, improvements to the process became essential (Glenn and Otten 2005, 15)

These contingency costs are captured separately. Costs associated with contingency operations are managed in a separate account within the normal FHP. The operating unit's total executions are included in the CPFH, but the actual costs are monitored and managed separately. The CPFH is still a true cost that is associated with operating the particular T/M/S, but the total operational costs and hours flown are funded by contingency funds from Congress. This data will give the decision makers the real costs of operating while deployed and the increased costs by CPFH for each T/M/S deployed.

B. RESEARCH QUESTIONS

1. Primary Research Question

a. How do the Air Force and the Navy budget and execute AVFUEL for their respective Flying Hour Programs at the Command and Wing levels?

2. Secondary Research Questions

a. What can the Air Force and the Navy, and ultimately the Department of Defense, learn by comparing the processes of the two services?

b. Based on the comparison, what are the best practices identified to make better use of limited AVFUEL funding?

c. Can the AVFUEL budgeting and execution processes of the two services be managed more effectively and efficiently based on the conclusions and best practices from the comparison?

C. BENEFIT OF STUDY

The purpose of this Project is to compare and contrast the Navy and Air Force AVFUEL processes to determine their best practices. Based on these best practices, the Navy and Air Force will have the opportunity to learn from each other and more effectively and efficiently manage their respective flying hour programs. Additionally, the project will provide future Air Force and Navy flying hour analysts assigned to the Command and Wing level, a source document describing the AVFUEL budgeting and execution processes.

D. METHODOLOGY

A primary source of data for this project came from past job experiences of the authors. One of our team members spent a previous tour as a flying hour analyst at Commander Naval Air Forces Pacific (CNAP). Another team member completed a three-year tour as a budget analyst at Air Combat Command (ACC) headquarters. Equally important was the information provided by current flying hour analysts of all levels of command from the Navy and Air Force, as these individuals are most intimate with everyday flying hour operations. The information from the Navy was gathered during personal and telephone interviews with flying hour analysts of CNAP. Information regarding the Air Force was obtained during telephone interviews with flying hour analysts from Air Combat Command, Air Force Materiel Command and Minot Air Force base and personal interviews with analysts from Nellis Air Force Base. Supporting information was also acquired from past theses and projects of the Naval Postgraduate School and the Air Force Institute of Technology. Additionally, information was obtained from authors who are experts in this area of research and from information retained during our academic curriculum. Data from these interviews and sources examined budgeting and execution patterns in both the Air Force and the Department of the Navy.

E. AREA OF RESEARCH

Due to the expansive number of variables used for CPFH formulation and the complexity of Flying Hour budget formulation and execution, it is inevitable the services will have differing procedures. In an effort to effectively and efficiently fund and execute the Department of Defenses AVFUEL program, a comparison of the Navy and Air Force processes will be conducted to establish best practices.

F. SUMMARY

The purpose of this chapter was to present the necessary background information to understand FHP concepts. It explained the basic FHP budgeting process and provided an overview of how flying hour costs are determined and how they are associated with each individual cost driver. The next chapter will discuss how the Navy budgets for AVFUEL and examine the Navy FHP execution of funds through the Command and Squadron levels. It will also discuss the PPBES process and how it determines future FHP funding requirements.

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II. NAVY AVFUEL BUDGETING AND EXECUTION OVERVIEW

A. INTRODUCTION

The purpose of this chapter is to explain how the Navy budgets for AVFUEL and executes the budget from the TYCOM level down to the Squadron level. Planning, Programming, Budgeting, and Execution System (PPBES) process overview is discussed along with how it helps in determining future FHP funding requirements. Background of the AVFUEL process and its interconnection with the Navy FHP is analyzed alongside the other FHP cost drivers. Navy Squadron level operations, particularly on station refueling, in-flight refueling, and Into-plane refueling and the AVFUEL recording process is explained in detail. The Navy Command level operations section focuses on how AVFUEL is reconciled and reported. The overall intention of this chapter is to give the reader the basic understanding of AVFUEL and the FHP components related to the Navy.

B. INTRODUCTION TO THE PPBES PROCESS

A basic knowledge of the Planning, Programming, Budgeting, and Execution System (PPBES) process is necessary to better understand AVFUEL funding. The overall objective of the PPBES process is to turn the National Military Strategy (NMS) into the equipment and forces needed by Commanders at all levels to accomplish their specific mission and support the strategy.

1. Planning

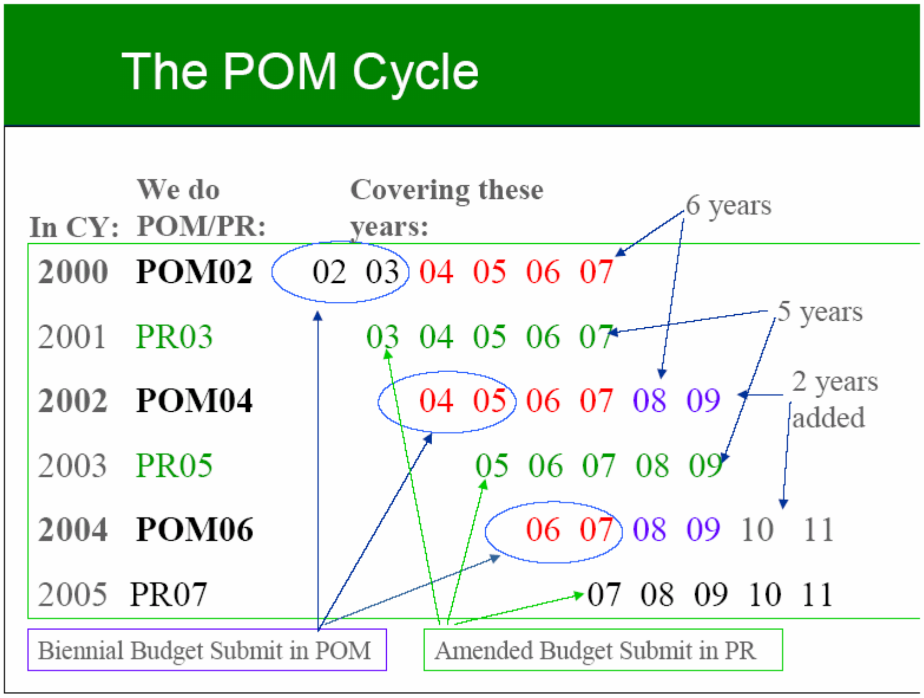
The Planning Phase addresses the capabilities required to carry out the U.S. national military strategy and the resources available for defense. This is the phase where our country's high-level military officials look into the future and determine where our country needs to be militarily in order to posture itself against possible threats from our nation's enemies. This strategy should support and maintain our US foreign policy 2 to 7 years into the future.

There are two documents created by the planning meetings, The National Military Strategy Document (NMSD) and the Joint Programming Planning Guidance (JPG). As stated by the General Myers, the Chairman of the Joint Chiefs of Staff (CJCS) in 2004, “this document (National Military Strategy Document) describes the ways and means to protect the United States, prevent conflict and surprise attack, and prevail against adversaries who threaten our homeland, deployed forces, allies and friends (CJCS 2005). The NMSD is the baseline for the Joint Programming Guidance.

The JPG is the key document of the planning phase and once signed by the President it serves as the fiscal guidance for the services. The JPG helps the services to formulate their Program Objective Memorandum (POM) for the upcoming six-year period. The signing of the Joint Programming Guidance signals the end of the Planning Phase and marks the beginning of the Programming Phase.

2. Programming

Programming translates the results of DoD planning into a logical six-year defense program within available resources. Every other year, each service submits its requirements for the next six years in a document called the Program Objective Memorandum (POM). This document details what resources each service and Combatant Commander’s (COCOMs) need in order to meet the requirements spelled out for them in the Joint Programming Guidance. “Every two years during the even years, the POM is updated to reflect: 1) new missions, 2) new objectives, 3) alternative solutions, 4) allocation of the resources, 5) ongoing DoD activities, and 6) the forecasted costs of each program (Keating and Paulk 1998, 15).” For a visual reference of the POM cycle (refer to Figure 1). Once the POMs from each of the services are completed, they are then reviewed by the CJCS to verify they meet the objectives of the Joint Programming Guidance and the National Military Strategy. Once each of the service POMs is approved, the budgeting phase can begin.

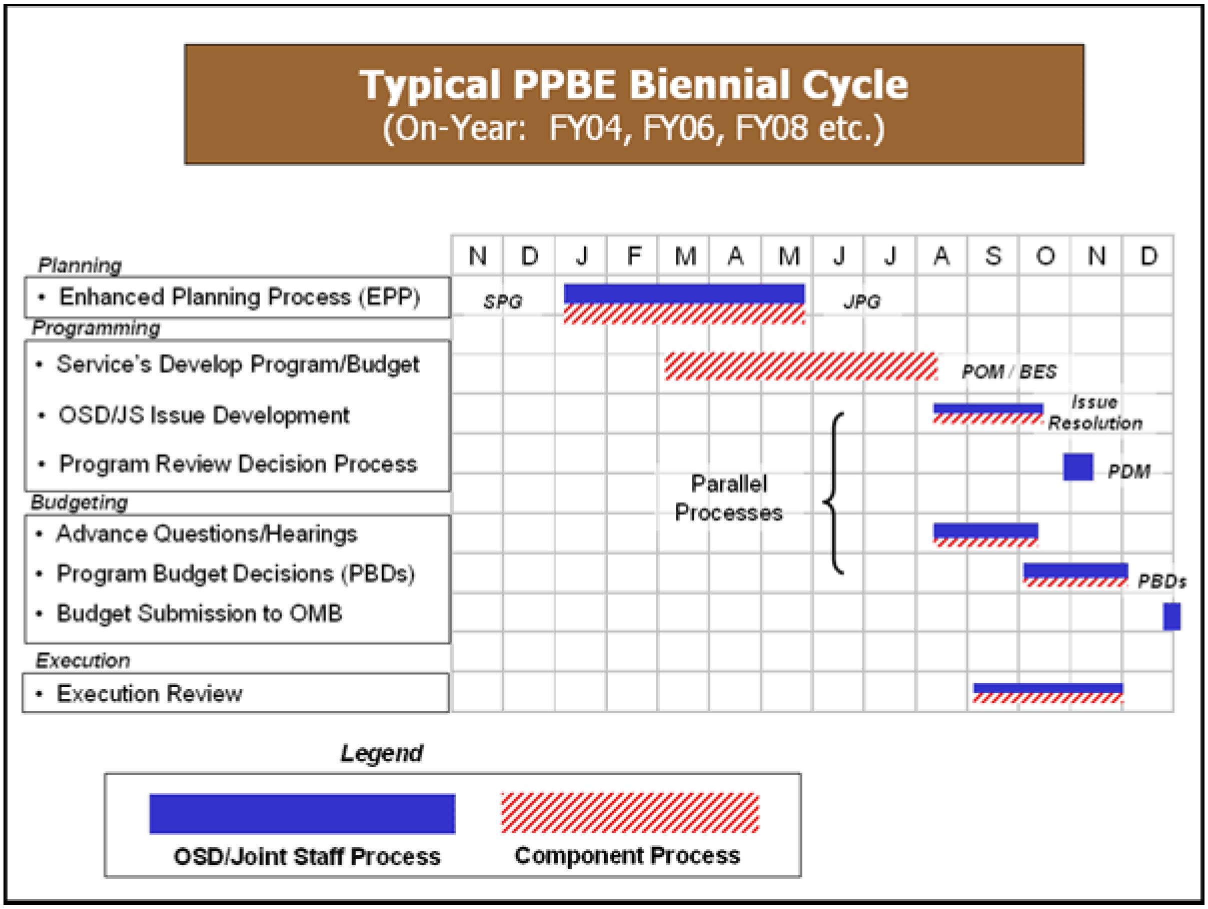


Source: http://pcc.nps.navy.mil/FMGuide_v6_rl.pdf, accessed 13 October 2006

Figure 1. The POM Cycle

3. Budgeting

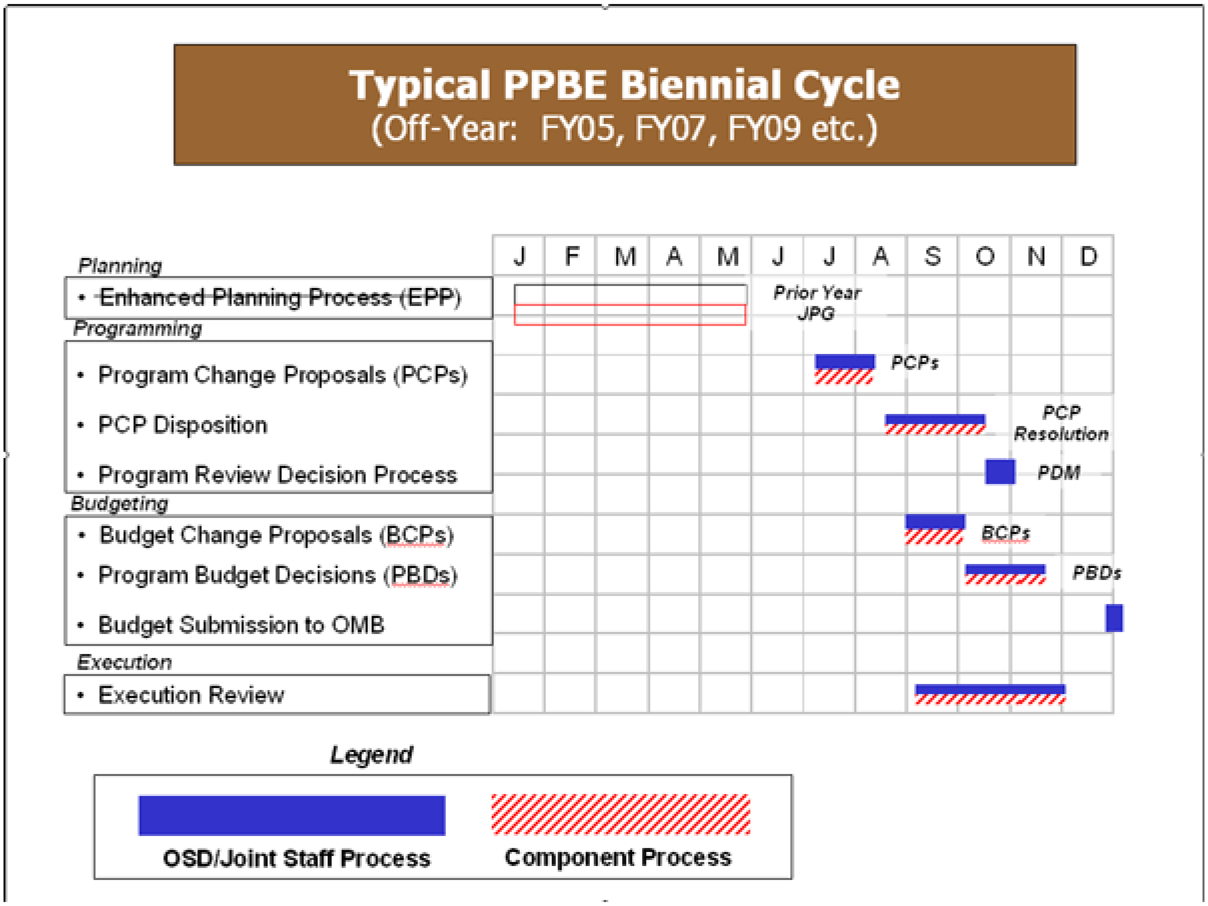
Budgeting converts the program into the congressional appropriation structure, focusing on building a justifiable budget while ensuring compliance with high-level guidance from the President and the Office of Management and Budget (OMB) (Keating and Paulk 1998, 13). In this phase of the process, each service department puts costs to their requirements in the POM. As pointed out by Jones and McCaffery, the budgeting phase begins with the approved programs in each military service POM. Each military component costs out the items that support its POM for the budget year and submits its part of the budget as its Budget Estimate Submission (BES).



Source: http://akss.dau.mil/dag/Guidebook/IG_c1.2.asp#Figure2, accessed 13 October 2006

Figure 2. Typical One-Year PPBE Biennial Cycle

The BES in even-numbered "POM years" is a 2-year submission and is based on the first 2 years of the POM (refer to Figure 2). The BES is amended by the services during the POM update occurring in odd-numbered years and covers only 1 year (refer to Figure 3) (Jones and McCaffery, 2001, 101).



Source: http://akss.dau.mil/dag/Guidebook/IG_c1.2.asp#Figure2, accessed 13 October 2006

Figure 3. Typical Off-Year PPBE Biennial Cycle

During the odd-numbered years, pricing changes and shortfalls are addressed which may require increases or decreases to the POM. This area may affect AVFUEL, particularly highly fluctuating price changes due to the cost of oil per barrel.

C. NAVY AVFUEL OVERVIEW

AVFUEL by definition is the cost of fuel to operate an aircraft and is the most unpredictable cost driver in the CPFH model due to price variations. However, it is very predictable when it comes to actual fuel needed per hour of flight time. AVFUEL cost fluctuates with world markets (price per gallon) and is directly related to National and International economic events. When budgeting for each T/M/S, the Office of the Chief of Navy Operations (OPNAV) calculates the fuel costs per hour (CPH) by multiplying the most recent fiscal year's certified fuel consumption rates times the projected pricing published by the Office of the Secretary of Defense (OSD) to determine cost per hour. The Flying Hour Cost Report (FHCR) then multiplies each aircraft type CPH by its estimated flying hour requirement from the FHP requirements model to determine a total dollar amount.

Certified Fuel Consumption Rate

X

Projected Hours

X

Published Pricing (OSD)

=

<u>Projected Fuel Cost</u>

With any model, input accuracy from the beginning of the fiscal year until the end of the fiscal year will determine the precision of the model.

There may be difficulty related to the different AVFUEL costs an operating unit may purchase during the execution of its flying hours and different costs per gallon depending on where the aircraft is refueled. The unexpected purchasing of aviation fuel from a commercial vendor at a civilian airport, where costs are significantly higher, is an example of the different costs. Another difficulty with the management of the AVFUEL CPFH is the submission of the actual gallons purchased by an operating unit. At times, an operating unit may purchase aviation fuel from other U.S. military bases within CONUS. Sometimes, a different branch of service may control this fuel. Therefore, the retrieval of the actual gallons purchased in a timely manner may be challenging.

Submission of AVFUEL gallons and the associated cost per gallon are becoming even more vital as each service department's budget is being affected by the ongoing support of the Global War on Terrorism (GWOT). All funding and resources must be properly budgeted and accounted for in order to ensure optimal spending. When estimating the flying hours required for an operating unit, the majority of the requirements will be for the Tactical Aircraft (TACAIR) operations and for training Squadrons. The focus should be on insuring the training Squadrons are properly budgeted for, with the emphasis being on properly training pilots.

The Navy records fuel transactions during normal operations, in CONUS and overseas, by using fuel chits (receipts) to document fuel purchases for Squadron and TYCOM operations departments to verify fuel used during the budgeting and execution process. The process starts when the aircraft taxis to the "fuel farm," where the pilot fuels his aircraft and receives a fuel chit stating how many gallons or pounds of fuel were received. Upon mission completion, the pilot records the number of hours flown on the "yellow card." The fuel chit and "yellow card" are then taken to the maintenance department where they are consolidated with the maintenance associated with each hour flown. The consolidated data is then transferred to Budget OPTAR (Operational Target) Report (BOR). The BOR will later be used to validate and compare hours flown with fuel cost and consumption. The next step in the process occurs when the bills come in from the "fuel farms." The Operations department must match the bills to the fuel chits provided by the Squadrons.

D. NAVY: SQUADRON LEVEL OPERATIONS[1]

All Navy and Marine Corps units are using the Fuels Automated System (FAS) to manage their AVFUEL expenditures. The FAS is analogous to an online personal checking account. The account holder has the ability to review all transactions made on their account and the authority to challenge erroneous charges. The automated online system is commonly known as the Purple Hub and will be used throughout this project as synonymous with FAS.

1 The following sections go into further detail about Navy Command and Squadron operations. The following information is based on personal interviews and telephone conferences with flying hour analysts at the Commander Naval Air Forces Pacific (CNAP).

Once the Squadron receives their AVFUEL grant from CNAP, the Squadrons manage their AVFUEL funding in a system called Aviation Storekeeper Information Tracking System (ASKIT), which is similar to a checkbook. Aircraft can be fueled by three different methods; on station (including aboard ships), in-flight refueling, and commercial airports (into plane).

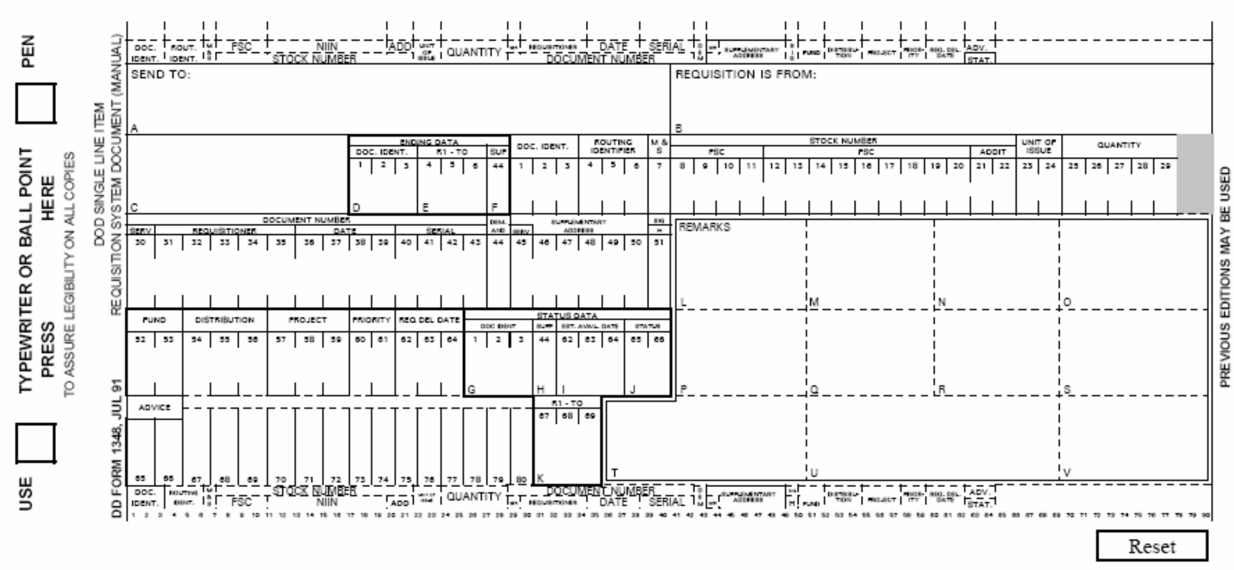
1. On Station Refueling

There are two methods to refuel aircraft on the flight line. The first method is when the aircraft are refueled by refueling trucks. The second method is when the aircraft taxis through the fuel pits upon return from their flight. Both methods require personnel from the fuel farm to operate the refueling trucks and to provide documentation of the fuel transaction. This document is known as a fuel chit, or a receipt, and provides the gallons of AVFUEL provided to each aircraft. After the aircraft is refueled, the pilot or plane captain then receives this fuel chit from the fuel personnel. They then take the fuel chit to the OPTAR manager at Material Control. The OPTAR manager then enters the data from the fuel chit into ASKIT. The data consists of the quantity of fuel, along with the fuel type (JP-4, JP-5 or JP-8). ASKIT can be set up to record the current fuel pricing prior to any inputs by the OPTAR manager. This gives the OPTAR manager the ability to quickly calculate total fuel costs once the number of gallons is input into ASKIT. Once the total fuel cost is calculated in ASKIT, the OPTAR manager then knows how much money to deduct from the fuel grant received from CNAP.

On station refueling is set up to bill the Squadrons that own the aircraft, by Unit Identification Codes (UIC). When a Squadron transfers an aircraft to another Squadron they submit an X-ray report, which records the transfer and verifies the aircraft is in a reporting or non-reporting status. An X-ray report is conducted any time there is a transfer of aircraft or when the reporting status of the aircraft changes. An example of a change in reporting status would occur if the aircraft is sent to depot level maintenance for repairs and is carried in a non-reporting status. The FAS personnel receive this information and are required to make the aircraft transfer within the system. If the transfer is done correctly, the billing process works correctly. As one can imagine, the opposite is true if the transfer is delayed, done incorrectly, or never completed. While the aircraft is being refueled during operations with the new Squadron, the old Squadron is inadvertently being billed.

A similar problem occurs if a Squadron loans an aircraft to a sister Squadron and they do not inform the fuel farm of the transfer. The resulting problem is that the loaning Squadron is billed for costs that should have been charged to the sister Squadron who is actually flying the aircraft.

When aircraft are refueled aboard ships, the pilots do not receive fuel chits per transaction. The fuel is rolled up twice a month and consolidated by the fuels division aboard the ship who lets the Squadron's OPTAR manager know how much fuel was issued by T/M/S during that two-week period. If a visiting Squadron refuels onboard the ship, the pilot will then pay for the fuel by issuing the ship a DD form 1348 (refer to Figure 4) while keeping a copy to take back to their OPTAR manager for input into ASKIT.



Source: http://www.dtic.mil/whs/directives/infomgt/forms/ddforms1000-1499.htm, accessed 4 November 2006

Figure 4. DD Form 1348, DoD Single Line Item Requisition System Document

2. In-Flight Refueling

When aircraft are refueled in-flight, such as the FA-18, it becomes more complicated to manage and account for the fuel because there is no fuel chit for the pilot to take back to the OPTAR manager. It is entirely up to the pilot to record how many pounds of fuel where taken onboard, which takes communication between the pilot, material control, and maintenance control. If done correctly, when the aircraft returns to its home station, the pilot will let material control and the OPTAR manager know accurately how many pounds of fuel where taken. ASKIT has the ability to convert the number of pounds into the number of gallons. Sometimes in-flight refueling has not been recorded the way it should be due to a lack of communication and manual submission. It is also important for the refueling Squadron to account for the fuel that has been transferred during in-flight refueling, in order to properly account for all fuel transactions.

Often, the Air Force provides the fuel for the Navy during refueling operations and fuel transactions are too often recorded incorrectly according to CNAP analysts. There are instances of miscommunications between the boom operator and the pilot where the Bureau Number (BuNo) is recorded incorrectly or the pilots are using call signs. Another possibility for error exists when several aircraft from different Squadrons are being refueled at the same time. In these cases, the Air Force unit may inadvertently record the Squadrons information from the first aircraft and charge it to another Squadron's aircraft. The information the boom operator records is then taken to the Squadron OPTAR manager. If available, the boom operator may use a Personal Digital Assistant (PDA) to record the transaction and then download the data for the OPTAR manager.

Another issue with in-flight refueling is the amount of time it takes for the transferred gallons from the refueling Squadron to be input. This is most evident when the Air Force or another branch of service refuels Navy aircraft. The transactions could take months to be reconciled. In addition, the opportunity for discrepancies increases due to differences in procedures and aircraft types. Once the correct quantities are finally reconciled between the services, only then can the actual charges be reconciled with data in FAS.

3. Into-Plane Refueling

Into-plane refueling refers to aircraft refueled at commercial airports using contracted fuel. The military is given a contracted price for all fuel used to fill a government aircraft. Into-plane fueling for the Navy is not yet billed through the Purple Hub. This makes it very important once again for the aircrew to get the fuel chit from the commercial airport fueling personnel. The pilot will then submit it to the OPTAR manager once they return to their home station so it can be input into ASKIT.

Pilots carry two fuel cards. The first is called the Identaplate, issued by the TYCOMs based on BuNo and UIC, which also carries the Squadron's name. The card is issued to a Squadron, therefore anytime there is a transfer of aircraft, the receiving activity must contact the TYCOM to request an Identaplate. The second fuel card is called the Air Card and is used for Into-plane transactions. The Air Card is also used to pay for landing fees and servicing of the aircraft should it require maintenance (7F administrative funds) at commercial airports. On occasion, a commercial airport will not take the Air Card so a Standard Form 44 must be used. A standard form 44 (SF-44) is a pocket size purchase order form, designed for on-the-spot, over-the-counter purchases of supplies and non-personal services while away from the purchasing office or at isolated activities or areas. It is a multi-purpose form that can be used as a purchase order, receiving report, invoice and public voucher. (An example is provided at Figure 5). The Air Card stays with the BuNo, therefore its does not contain Squadron identifying information, but it does contain an account number for billing purposes.

PURCHASE ORDER—INVOICE—VOUCHER

DATE OF ORDER	
PRINT NAME AND ADDRESS OF SELLER *(Number, Street, City, and State)** **P A Y E E**	
FURNISH SUPPLIES OR SERVICES TO *(Name and address)**	

SUPPLIES OR SERVICES	QUANTITY	UNIT PRICE	AMOUNT

AGENCY NAME AND BILLING ADDRESS* **P A Y O R**	TOTAL DISCOUNT TERMS DATE INVOICE RECEIVED
OREDERED BY *(Signature and title)*	
PURPOSE AND ACCOUNTING DATA	

PURCHASER—*To sign below for over-the-counter delivery of items*

RECEIVED BY	
TITLE	DATE

SELLER—*Please read instructions on Copy 2*

☐ PAYMENT **RECEIVED**	☐ PAYMENT REQUESTED

NO FURTHER INVOICE NEED BE SUBMITTED

SELLER BY (Signature)	DATE
I certify that this account is correct and proper for payment in the amount of *(Authorized certifying officer)*	DIFFERENCES ACCOUNT CERTFIED: CORRECT FOR BY

PAID BY ☐ **CASH** **OR……………………………………………..** *(Check No.)*	**DATE PAID**	**VOUCHER NO.**
*** PLEASE INCLUDE** **ZIP CODE**	**1. SELLER'S INVOICE** ***(See Instructions on Copy 2)***	STANDARD FORM 44a (REV. 10-83) PRESCRIBED BY GSA, FAR (48 CFR) 53.213(c)

Source: http://www.gsa.gov/Portal/gsa/ep/formslibrary.do?formType=SF, accessed 10 October 2006

Figure 5. SF 44, Purchase Order/Invoice/Voucher

Every Squadron's OPTAR manager has a password to get into Purple Hub and are advised by TYCOM to reconcile fueling transactions two to three times per week. Not all, but some of the OPTAR managers do not meet this requirement and wait until the cycle is about to close out before reconciling the account. This reconciliation is most important when chits are not used, as in in-flight refueling, because often the bills come in after the billing cycle has closed.

The FAS allows the OPTAR manager to see all information pertaining to a particular fueling transaction, to include quantity of fuel, the date, and the seller's information. If a transaction proves incorrect and does not match one of the fuel chits, OPTAR managers have the ability to challenge a charge. Once the OPTAR manager has validated all of the transactions, they download the file from FAS directly into ASKIT, eliminating the necessity for manual inputs. The fuel charge being challenged by the OPTAR manager is excluded from the download and is then validated independently.

The Squadrons reconcile the actual bills using a Summary Filled Order Expenditure Difference Listing (SFOEDL). These charges have actually been billed through the Defense Finance and Accounting Service (DFAS). The OPTAR manager is required to validate the items on the SFOEDL, received monthly, against the data in ASKIT. The discrepancies between the SFOEDL and ASKIT are researched to determine the reason for the billing differences. The accounting department at CNAP helps the Squadrons research any erroneous charges. Once the error is resolved, the accounting technician will then input the changes, which takes another month to show up on the corrected SFOEDL. If the OPTAR manager is being diligent and reconciling the fuel charges from the chits against ASKIT, the number of discrepancies between the ASKIT report and the SFOEDL will be minimized. If the OPTAR manager is not reconciling in FAS as they should, the correction process could take up to three months to be corrected on the DFAS report. During this reconciliation period, the funds remain obligated and not available for other missions until the discrepancies are corrected and the funds are then de-obligated. While funds remain obligated, future missions and sorties may suffer. It depends on the amount of the discrepancy, but if it is large enough the squadron may be required to request additional funding via Naval message to complete tasking.

E. NAVY: COMMAND LEVEL OPERATIONS

The TYCOM provides the Squadrons with their annual funding and associated projected hours to be flown for that fiscal year. The funding is then correlated to what they are authorized to fly quarterly.

The number of hours allotted to the Squadrons is dependent upon several variables. These variables are based on if the Squadron is scheduled for a deployment, training and qualification requirements, and the number of aircraft assigned. TYCOM receives a document called the CAG GAP. Whatever the hours are, TYCOM converts that to dollars based on the OP-20 provided by OPNAV, which states the cost per flying hour, by T/M/S. For example, if a Squadron is given 100 hours on their grant in a particular quarter, TYCOM multiplies the 100 hours times the cost per flying hour from the OP-20.

A funding grant is provided to the Squadrons in order to financially cover all their related expenditures. Once all of the transactions are completed for a given month, the Squadron will submit a Budget OPTAR Report (BOR) to the TYCOM. The information on the BOR provided by the Squadrons is then loaded into a program called the Aviation Cost Evaluation System (ACES). ACES compiles all information from the Squadron for analysis. The system not only calculates fuel costs, but it also calculates all the variables used in the cost per flying hour equation. This includes AVDLRs (repairable parts), AFM (consumable parts and maintenance), and ultimately produces the Flying Hour Cost Report (FHCR). The FHCR consolidates the data received from the Squadrons monthly BORs and then provides the data in the same format as the OP-20, for analysis. The analysis of the FHCR will provide the variances to the actual execution compared to the baseline data from the OP-20. These variables of hours flown and funds executed often depend on the location and mission of the Squadron. Below is an excerpt from Keating and Paulk's thesis that explains these variances.

> Other factors that can drive variances in the CPH are different aircraft utilization rates due to different mission requirements or changes in mission requirements, differences in aircraft age, difference in maintenance manning and experience, and timing of the installation of modification and reliability improvements. All of these variables can cause differences in the CPH among different operating Squadrons using the same aircraft and result in increased variability in funding requirements.

The FHCR reports the annual flying hour program cost data. The reports are broken down by Program Element (PE) and show the total number of aircraft assigned to a specific category, such as those in Tactical Air (TACAIR), then by T/M/S. A typical FHCR from the TYCOM would contain line items such as number of forces (the number of aircraft in TACAIR), the number of hours flown, and the CPFH category of AVFUEL, AVDLRs, and AFM.

Once the analysts at CNAP verify the data on the FHCR to be correct, the FHCR is then submitted to OPNAV. Part of the analysis consists of comparing the execution data on the FHCR to the data provided in the OP-20. The OP-20 provides an operating and budget baseline for all Navy and Marine Corps aircraft by T/M/S. This comparison will determine whether a particular Squadron or T/M/S of aircraft is operating according to the budget and plan provided from the OP-20.

An example of analysis being conducted at the TYCOM level would be the monthly reconciliation of the Squadrons monthly BOR. A Squadron will provide their monthly execution as well as their Fiscal Year (FY) to date execution on the BOR. If a Squadron reported their FY spending for the month of August at $200K and then reported a monthly execution of $50K on their September BOR, the FY spending for September should be $250K ($200K from August plus $50K from September). However, if the Squadron states they have FY spending of $275K for September, then the analyst at the TYCOM must go back to the Squadron and research the difference to find out where the additional $25K came from. Most of the time its related to the Squadron missing fuel from a previous month that they have already reported. In this case, the analyst at the Squadron must correct the error in the month the erroneous transaction occurred. Once the changes are made, the Squadron analyst must input the reason for the discrepancy in the remarks section of their corrected BOR so the TYCOM analyst is made aware of the rationale for the correction.

The Navy receives its funding through their operational and administrative chain of Command. CNAP for example, receives their funding from Commander Pacific Fleet (COMPACFLT) out of Hawaii. The amount of funding they receive is determined by the OP-20. CNAP submits a budget request at the beginning of the fiscal year and again after the mid-year review process. The mid-year review process is simply an evaluation of the current execution at the mid-year point of the FY to determine the remaining funding requirements to close out the FY.

An exception to the above process would be when a Squadron is operating in support of contingency operations. Often contingencies are not budgeted for because they are not planned operations that are budgeted in the OP-20. They are usually emergency type operations and the required hours to be flown are not known. The hours that are flown in support of these contingency operations are also reported separately on the Squadron's monthly BOR, labeled as contingency hours. The TYCOM will then take the hours flown in support of the contingency operations and multiply the number of those hours flown by the budgeted CPFH for that T/M/S from the current OP-20. The TYCOM will then submit a request for reimbursement of the costs associated with flying contingency operations from COMPACFLT.

The funding is distributed to Squadrons on a quarterly basis and is subject to the CAG GAP and the OP-20. If the Squadron needs additional funding, they must justify the increase in funding and submit their request via an official Naval message. Occasionally, an augment of funding may be sent to a Squadron if they fly special missions. An example would be participation in test and evaluation for another TYCOM, in which case the other TYCOM, such as Naval Air Systems Command (NAVAIR), would reimburse CNAP the full cost per hour to use their aircraft.

Recently there were units that used the majority of their flying hours on contingency operations, such as in the support of the Global War on Terrorism. These

Squadrons still need to meet their peacetime requirements such as training their pilots so they can keep up with their proficiencies. These Squadrons are forced to request additional funding in order to meet the required flight hours provided during a mid-year review.

At the beginning of the FY, the TYCOM normally only gets one quarter worth of their annual funding. The amount of this grant is usually the same amount that was executed in the first quarter of the previous FY. Once the Continuing Resolution Authority (CRA) is signed by the President, the funding provided in the current OP-20 will then become the TYCOMs budget baseline for the FY.

Even though the Squadrons need to stay within their funding levels, realistically the TYCOMs are not going to stop them from flying their missions. Meaning, as long as the execution of funds can be justified, and considered valid, then usually additional funding will be provided to pay those bills.

F. OP-20 FUNDING

The OP-20 provides funding in three main categories by each T/M/S: AVFUEL (7B), AVDLRs (9S), and AFM (7L).

AVFUEL is the cost of fuel for aircraft (JP-4, JP-5, JP-8). The Fund Code (FC) for AVFUEL is 7B. AVDLRs is the cost provided for all repairable parts for the aircraft. The fund code for AVDLRs is (9S). AFM is the cost provided for all consumable parts and for the contracted maintenance personnel that work on the aircraft. The fund code for AFM is (7L). The funding provided in the OP-20 is also separated by services, providing flying hour funds to both the Navy and Marine Corps Squadrons separately. The OP-20 not only provides dollars to be executed by fund code, but also by hours to be flown by T/M/S. The OP-20 not only tells you what the cost per flying hour by T/M/S should be, but it also tells you what the total cost for supporting each aircraft should be. In order for CNAP to develop their FHP they request the following information from the Commands and Squadrons.[2]:

2 Memorandum from Chief of Naval Operations, Fleet Readiness Division (N43) of 8 October 2004, Subject: Data Call in Support of the Flying Hour Program (FHP) Capabilities Plan (CP) Development for PR-07, p. 2-4.

TACAIR

- The 100% static T&R matrix sortie requirement for each TACAIR TMS, on an annual basis. Additionally, they must provide an electronic version of the most recent T&R Instruction that reflects this data.
- The Equivalent Sortie Length (ESL) for each TACAIR TMS.
- The percentage of the total sortie requirements that are projected to be completed in simulators for each TMS for FY06 through FY11.
- The number of staff aviators, by TMS, and the sorties/crew/month (as a percentage of T&R) for which to budget for those aviators.
- The support sortie/flight hour requirement for each TACAIR TMS as a percentage of the training sortie/flight hour requirement. 21 Fleet Air Training
- Naval Strike and Air Warfare Center (NSAWC) sortie/flight hour requirements by TMS and Mission Category. Justification and explanation of each mission category. If Software for Targeting Requirements, Information Operations and Kinetic Effects (STRIKE) requirements still exists, a detailed explanation of the purpose of those requirements, along with an explanation of the accounting process used to report the execution of those hours.

Fleet Air Support

- Comments regarding any specific discrepancies of the most recent FY's executed FAS aircraft utilization rates.

All Schedules

- Certified FHCR.
- Additional data regarding non-recurring FM costs.
- New and updated cost adjustment sheets.
- Contract maintenance requirements.
- Reviewed FO requirements with associated justification.

G. CHAPTER SUMMARY

This chapter has explained the AVFUEL budgeting process for the Navy and has given examples of both Squadron level and Command level activities. It has also explained the basics of the Planning, Programming, Budgeting and Execution System (PPBES) process. Next, the basic formula for AVFUEL budgeting discussed the OSD published pricing rate and the fuel consumption rates of each T/M/S. The AVFUEL process also discussed how the Operations department must match each bill with the fuel chits produced by the Squadrons. The three types of refueling were analyzed in detail and Command level factors such as training missions and TACAIR requirements were detailed. The Navy chapter concludes with a discussion of how the Navy finally gets their money and how the OP-20 is used to get AVFUEL to the Wings. The Navy may be utilizing a better method of getting the AVFUEL funding to where it is executed, by not micromanaging at the Command level. The Navy is executing their FHP well with a decentralized accounting process. However, they should evaluate the Air Force's centralization process as it progresses and determine if it is something they could implement.

The next chapter delves into the Air Force budgeting and execution process from the Command level down to their Squadrons. The next chapter also reviews and analyzes the Air Force management centralization of the FHP process and its execution in terms of whether it promotes increased efficiency.

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III. AIR FORCE AVFUEL BUDGETING AND EXECUTION OVERVIEW

A. INTRODUCTION

This chapter addresses the Air Force processes for AVFUEL budgeting and execution at the Wing and Command levels[3]. To facilitate an understanding of the budgeting and execution processes, this chapter first discusses the actual methods for refueling aircraft. This discussion will clarify why the method in which an aircraft is refueled impacts the approach that Wings and Commands take to budget and execute AVFUEL funding.

Also of importance is the approach the Wings, Commands, and Air Staff levels take to determine the AVFUEL requirement. Each of these levels performs an extensive amount of research annually to determine the number of hours to fund mission requirements for the upcoming fiscal year.

Once the required number of hours, per Mission Design Series (MDS), is determined and the funding is matched with those hours, an hourly AVFUEL rate is established by Air Staff. The Commands do not give the Wings the same rate given to them by the Secretary of the Air Force (Financial Management) (SAF/FM), but in fact give them a reduced rate. The reason for this reduced rate will be explained in depth to fully understand the initial distribution of AVFUEL to the Commands and Wings.

Finally, as this project is written, the Air Force has begun the first stage of centralizing the entire flying hour program under one Organizational Account Code (OAC) at Air Force Material Command (AFMC) Headquarters at Wright Patterson AFB, in Dayton, Ohio. The first stage centralized the AVFUEL process beginning the first quarter of FY07. The remaining flying hour commodities will be centralized the first quarter of FY08. With this transformation, all flying hour functions will be performed at the central location and will no longer be a responsibility of the Wing and Command levels. Although in its infancy, this transformation appears to be a move in the right

3 The following information was provided via personal interviews and telephone conferences with Air Force Flying hour analysts at Nellis, AFB and Minot, AFB during summer 2006.

direction because it is taking advantage of technological advances already in place and projected to eliminate unnecessary man-hours at the Wing and Command levels.

B. AIR FORCE: SQUADRON LEVEL OPERATIONS

1. On Station Refueling

Each aircraft carries a payment card in a kit onboard called an AIR Card (see Figure 6). The AIR Card is a credit card embossed with the name of the Squadron and a line of accounting to identify the unit that will be paying for the fuel. Each AIR Card is tail number specific and works very much like a personal credit card one would use to purchase gas for his/her car at a gas station. Once an individual swipes the card at a gas station, he/she is obligated to pay for that purchase once the invoice arrives. The same holds true for the Squadron that owns the aircraft. Once the Squadron receives the bill, they must pay the bill.

Source: The DoD Fleet Card and the Aviation Into-plane Reimbursement (Air) Card Program. PowerPoint presentation by Deborah L. Van Kleef of the Change Management Office, Defense Energy Support Center (DESC).

Figure 6. US Government AIR Card

When an aircrew fills up at another Air Force base or refuels at their home station using the AIR Card, the fuels personnel who work for the Logistics Readiness Squadron (LRS) provide the aircrew a receipt. The aircrew then turns the receipt into their Squadron during the flight debrief. The information embossed on the AIR Card shows the Department of Defense Activity-Address Code (DODAAC), and identifies which unit is responsible for paying for that fuel. All Air Force refueling activities fall under one Organizational Code (Org Code), but the DODAAC will reveal which specific unit was refueled.

If a Squadron refuels at another Air Force base, the visiting Squadron does not reimburse the host unit. The reimbursement goes to the Defense Energy Support Center (DESC), because they are charged with providing fuel to the Department of Defense. DESC is seeking reimbursement from the unit who actually used the fuel, not the unit that pumped the fuel.

The invoices will show up in the Purple Hub and give the Squadrons the ability to review and challenge any bills charged to their Squadron. Each installation has a Wing Refueling Document Control Officer (WRDCO) who is responsible for reconciling fuel charges for their respective base.

2. In-Flight Refueling

If an aircraft is refueled during in-flight operations, the transaction is recorded on an AF Form 791, Aerial Tanker In-Flight Issue Log (see Figure 7). This form records the information of the aircraft being refueled. The information recorded includes the aircraft's Command, MDS, tail number, call sign, home station, and the amount of fuel issued in pounds and gallons. This information is then provided to the tanker's WRDCO and the refueled aircraft's WRDCO upon mission debrief.

3. Into-Plane Refueling

This method is used when an aircraft lands at a commercial airport and requests fuel or ground service support. The aircrew member presents their AIR Card to the refueler. Although rare, if the commercial airport is not set up to use the AIR Card, the aircrew uses an Air Force Invoice (AF Form 15, see Figure 8). The aircrew can also pay for the fuel transaction using another credit card called an Identaplate (see Figure 9). The supplier records the sales onto a commercial delivery ticket and the aircrew signs for the purchase and retains a copy of the signed receipt. After the termination of the flight, the pilot will turn the receipt into their Squadron during the mission debrief.

AERIAL TANKER IN-FLIGHT ISSUE LOG	MISSION DATE AND TIME			
	FROM		TO	
	DATE	TIME *(Zulu)*	DATE	TIME *(Zulu)*

TANKER ORGANIZATION AND HOME STATION	TANKER MDS	TANKER SERIAL NO.	FUEL GRADE

ISSUES [1]						
AIRCRAFT COMMAND	AIRCRAFT MDS	AIRCRAFT TAIL NO.	AIRCRAFT CALL SIGN	AIRCRAFT HOME STATION	QUALITY ISSUED	
					POUNDS	GALLONS
BOOM OPERATOR'S NAME AND GRADE *(Print)*				TOTAL		

1. WHEN FUEL IS JETTISONED, ENTER QUANTITY AND NOTE "JETTISONED".
3. ENTER COMMAND OF AIRCRAFT REFUELED, e.g., "AAC", "MAC", "ANG", etc.
3. ENTER AIRCRAFT MISSION, DESIGN, SERIES, e.g., "B%@G", "F15A", "F106B", etc.

AF IMT 791, 19830201, V2 PREVIOUS EDITION WILL BE USED.

TANKER MDS	TANKER SERIAL NO.	FUEL GRADE

ISSUES [1]						
AIRCRAFT COMMAND	AIRCRAFT MDS	AIRCRAFT TAIL NO.	AIRCRAFT CALL SIGN	AIRCRAFT HOME STATION	QUALITY ISSUED	
					POUNDS	GALLONS
				TOTAL		

REMARKS

AF IMT 791. 19830201. V2 *(REVERSE)*

Source: http://www.e-publishing.af.mil/forms/formlist.asp?puborg=AF&series=0700-0799, accessed 15 October 2006

Figure 7. Aerial Tanker In-Flight Issue Log, AF IMT 791

"WHEN USING BALL-POINT PEN PRESS HARD TO ASSURE LEGIBILITY ON ALL COPIES"

UNITED STATES AIR FORCE INVOICE
(See instructions on Reverse)

1. DATE

C

2. PAY TC *(Name and Address of Payer)*

AIRCRAFT DATA

5. ORGANIZATION

6. HOME STATION

3. PURCHASED AT *(City, State, Country or refer to Flip)*

7. MAJOR COMMAND

8. M/D/S OR VEHICLE ID

9. SERIAL NO.

4. SEND BILL TO:

10. OPERATIONS, FLIGHT, OR TRAVEL ORDER NUMBER AND DATE OF ORDERS.

11. ARTICLES/SERVICES	(TO BE COMPLETED BY VENDOR ONLY) 12. QUANTITY	13. UNIT	14. UNIT PRICE	15. TOTAL
	TAX *(If not included in unit price)*			
			TOTAL	

INSTRUCTIONS TO SELLER

16. *For payment without further action on your part, complete copy 1 of this form and return to the purchaser. Payment will be made directly to you after return of this document to home station.*

If you wish to retain original copy of this form, you will not be paid until submission of the original of this form or an invoice with the original copy of this form to the address in block 4:

PURCHASER'S CERTIFICATION

17. Pursuant to authority vested in me. I certify that the supplies enumerated above or on an attached list have been received in good condition and in quantities as stated; that the services enumerated have been satisfactorily performed. That the supplies or services were purchased in an emergency for the maintenance, operation, or protection of Government equipment and were necessary for the public service.

☐ I have retained original.

☐ Seller has retained original. Company invoice payment will be made when invoice(s) supported by a copy of AF Form 15 is received.

VENDOR'S DELIVERY TICKET NUMBER IS *(If applicable)* ____________

18. PRINTED NAME OF PURCHASES	19. GRADE	20. SQUADRON	21. SIGNATURE

VENDOR'S CERTIFICATION

I certify that the above bill is correct and just, and that payment thereto has not been received.

22. PRINTED NAME OF SELLERS REPRESENTATIVE	23. SIGNATURE	24. DATE

VALIDATING OFFICIAL'S CERTIFICATION

25. PRINTED NAME	26. GRADE	27. ORGANIZATION	28. SIGNATURE	29. DATE

30. ACCOUNTING AND APPROPRIATION DATA

☐ PAYMENT ☐ COMPLETE ☐ PARTIAL ☐ FINAL

APPROVED FOR =$

EXCHANGE RATE = $ 1.00

ON *(Name of Bank)*

34. PAID BY

Pursuant to authority vested in me, I certify that this voucher is correct and proper for payment.

33. AMOUNT VERIFIED

31. SIGNATURE AND TITLE OF CERTIFYING OFFICER	32. DATE	CORRECT FOR	$
		D.O. VOUCHER NO.	
		CHECK NO.	

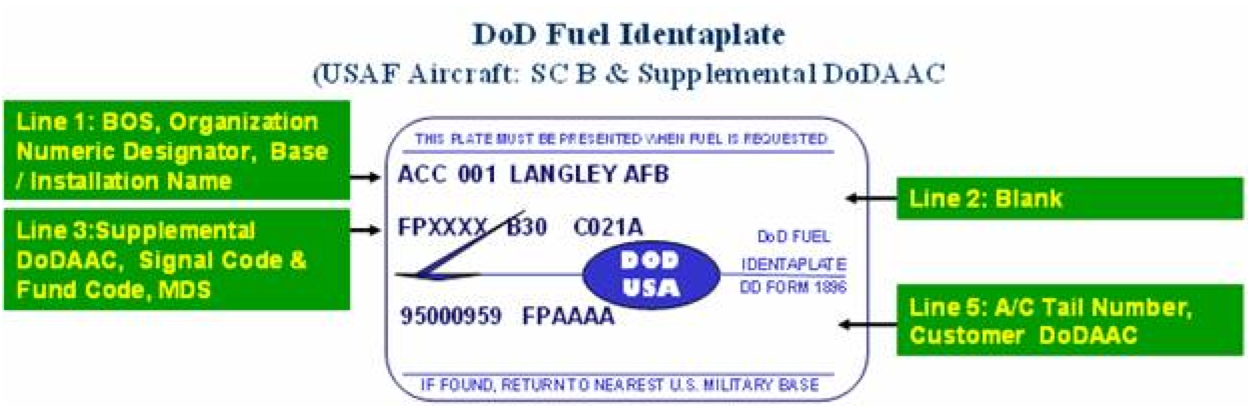
FOR PURCHASES IN FOREIGN COUNTRIES INDICATE: Type of currency in pounds, francs, lire, etc.

AF IMT 15, 19910801, V2 PREVIOUS EDITIONS WILL BE USED.

Source: http://www.e-publishing.af.mil/forms/formlist.asp?puborg=AF&series=0001-0099, accessed 15 October 2006

Figure 8. United States Air Force Invoice, AF IMT 15

As stated earlier, there are instances when the AIR Card is used and situations when the Identaplate is used. The AIR Card is used when there is an electronic reading device available to pay for the required fuel. The card is read electronically and the information ultimately is loaded into the Purple Hub. The Identaplate is a hard copy cards used when there is no option of using the AIR Card, similar to the manual sliding machines used several years ago before magnetic strips. Both the Air Card and Identaplate have the same information on it. The decision to use the Air Card or Identaplate lies in the location's ability to read the Air Card.



Source: Centralized Asset Management Program "AvPOL." PowerPoint presentation conducted by AFMC/FM

Figure 9. DoD Fuel Identaplate

C. AIR FORCE: COMMAND LEVEL OPERATIONS[4]

1. Command Level Budgeting

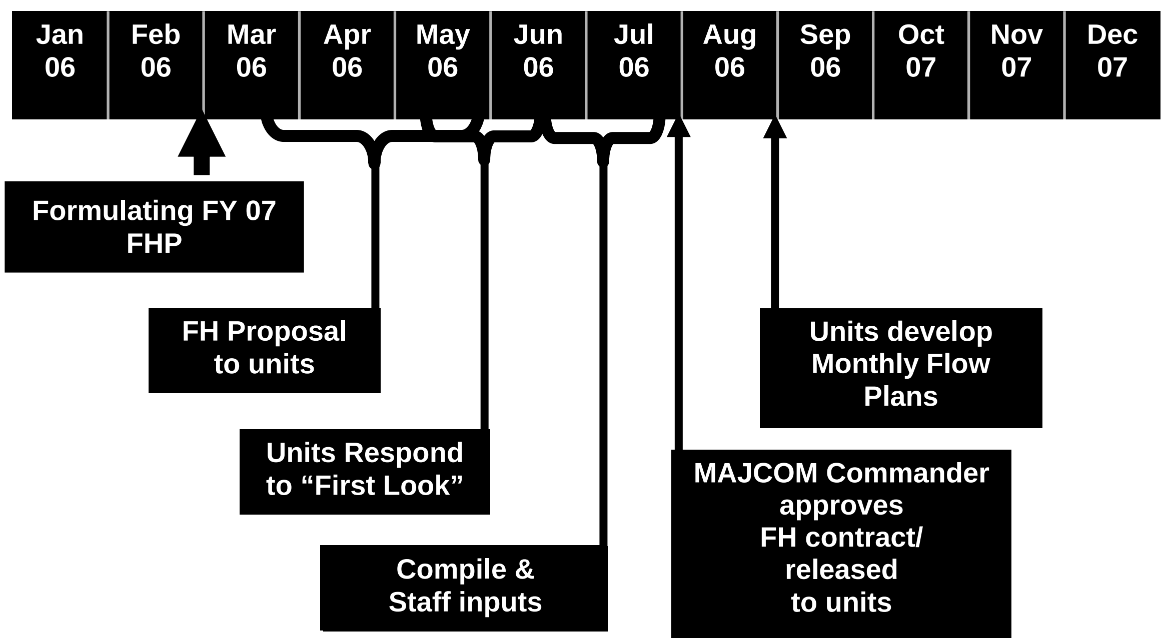
The funding process at Command level begins with an AVFUEL rate provided by SAF/FM.

> The FMBP directorate integrates the Air Force budget within the Planning, Programming, Budgeting, and Execution System. It also coordinates the Air Force actions for the Budget Estimate Submission (BES). The FMBP manages the Air Force database for the Force and Financial Plan and all fiscal control adjustments. In addition, it acts as the

4 Information in this section was developed from a telephone interview with a flying hour analyst from Air Combat Command at Langley Air Force Base, VA.

> principal advisor to the Assistant Secretary of the Air Force for Financial Management and Comptroller (SAF/FM), and the Deputy Assistant Secretary for the Budget on Total Force Comptroller, and budget issues between the Air Force, Air Force Reserves, and Air National Guard. These functions are core to the Air Force budgeting. (McCaffery and Jones 2004, 255)

This process takes approximately one year from start to finish, which may cause rates to be slightly higher or lower at time of execution. See Figure 10 for details of the processes involved in the developing a Flying Hour rate. The AVFUEL rate lists each type of aircraft and the cost of fuel to fly that particular aircraft for one hour. If that rate should change during the fiscal year, SAF/FM will provide the Commands with an updated rate.



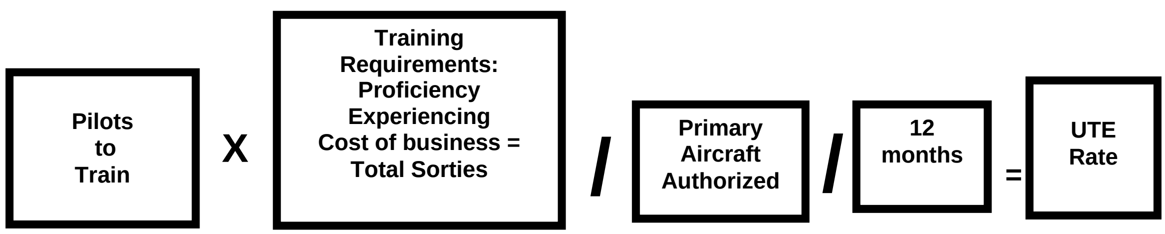
Source: Centralized Asset Management Program “AVPOL.” PowerPoint presentation conducted by AFMC/FM

Figure 10. Flying Hour Timeline Development

The required number of hours to be flown for each aircraft is determined by the mission of the aircraft and the training requirements of the pilots. This process is addressed in the coming paragraphs. However, just because a Wing requires a certain number of hours to stay proficient, that does not mean they will get the hours they have requested. If they do not have enough aircraft to fly the required missions then they will only get the hours for the capabilities of the aircraft on station. A shortage of aircraft may occur due to scheduled or unscheduled maintenance. This may require the pilots to use flight simulators to satisfy training requirements.

Budgeting for the required number of flying hours for the coming FY is a very involved process. The installation's Operations Group (OPs Group) determines the number of hours needed to complete the required missions and the amount of hours necessary to keep their aircrew qualified. The Ops Group develops a Unit Training (UTE) rate (number of training hours per crewmember) based on the number of aircrew assigned and the number of hours the Squadron needs to train and keep their aircrew proficient. Refer to Figure 11 for a graphical representation of how a UTE rate is determined.

These requirements along with the number of aircraft assigned are used together to determine the number of hours required for the upcoming fiscal year. The required hours for the base are provided in a "contract" to the Command level Director of Operations (DO or A-3) and Logistics Group (LG or A-4), who in turn determine what the Cost Per Flying Hour rates should be for these number of hours. The SAF/FM establishes these rates for each commodity of the Cost Per Flying Hour formula.



Source: ACC Flying Hour Program Management. PowerPoint presentation conducted by Mr. John Cilento, ACC/A3TB

Figure 11. UTE Rate Calculation

The Command level knows how many hours the Wings need to fly to remain proficient and accomplish the mission, based on the “contracted” hours. The Command then asks the Wings two questions:

1. What did they do last year that they will not be doing this year?

2. What are they going to do this year that they did not do last year?

The Command is looking for pluses and minuses they may be able to use to adjust the rates provided by SAF/FM. The Commands will then provide the Wings with a funded amount reflective of the adjustments for those pluses and minuses for each assigned airframe.

Once the flying hour requirement is determined by the Wings, Command level DO LG, it is sent to their counterparts at Air Staff.

Air Staff, in accordance with guidance from the Air Force Cost Analysis Improvement Group (AFCAIG), determines the actual number of hours each Mission Design Series will fly and the hourly rate at which it will burn AVFUEL, based on inputs from the Commands and Wings. The SAF/FM matches these hours with funding and an AVFUEL rate is established. Now that the AVFUEL rate and the number of hours are determined for each MDS, the information can be sent to the Commands for eventual distribution to the Wings. Refer to Figure 12 for a partial example of the SAF/FM rates sent to the Commands.

Weapon System	Commodity	FY04	FY05	FY06	FY07	FY08	FY09	FY10
E004B0	AVPOL	4504	6629	10063	9892	9645	9548	9500
E009A0	AVPOL	149	219	332	327	319	315	314
E010A0	AVPOL	2735	4026	6111	6008	5857	5799	5770
E003B0	AVPOL	2172	3197	4853	4771	4651	4605	4582
F015C0	AVPOL	1489	2191	3326	3269	3188	3156	3140
E003C0	AVPOL	2172	3197	4853	4771	4651	4605	4582
F015D0	AVPOL	1489	2191	3326	3269	3188	3156	3140
B052H0	AVPOL	2862	4212	6394	6285	6128	6067	6036
C135WT	AVPOL	1696	2497	3790	3726	3633	3596	3578
T038A0	AVPOL	330	486	738	725	707	700	696
F117A0	AVPOL	975	1435	2178	2141	2088	2067	2056
F022A0	AVPOL	1909	2810	4266	4193	4088	4047	4027
F016D0	AVPOL	813	1196	1816	1785	1740	1723	1714
F016C0	AVPOL	813	1196	1816	1785	1740	1723	1714
F015E0	AVPOL	1675	2466	3743	3680	3588	3552	3534
B002A0	AVPOL	1934	2846	4320	4247	4141	4099	4079
B001B0	AVPOL	3323	4891	7425	7298	7116	7045	7009
C130HE	AVPOL	683	1006	1527	1501	1464	1449	1442

Source: Air Combat Command's financial management flying hour analyst.

Figure 12. SAF/FM Fuel Rates

2. Distribution of Funds to Base Level

As described earlier, the Commands do not give the Wings the rate they received from Air Staff. They give them a reduced Command rate. If SAF/FM were to say it was going to cost $1000 per hour to fly the F-16, the Command may only give the Wing $900. This reduced rate is based on last years information and how efficient they were in their operations. As stated earlier in the project, questions are asked early in the rate formulation process to determine events that happened last year that will more than likely not happen this year, such as, extraordinary maintenance issues or a contingency.

DO and LG perform an extensive analysis of historical information to determine the actual rate at which they believe the Wings will execute their AVFUEL funding. If correct in their assumptions, the Wings will spend at the rate provided by the Commands and there will be excess funding at the end of the year.

The time of the fiscal year determines the amount of annual funding the Wings will receive from the Commands. The amount fluctuates between six to nine months of the total 12 month authorization depending on when the installations receive their initial distribution. As they approach the end of the fiscal year, the remaining funds will be provided as needed.

The Wing flying hour analyst then loads a target in BQ for each MDS cost center by Element of Expense Investment Code (EEIC). BQ is the budgeting system Wings use to allocate funding to all organizations on an installation, verify/certify funds availability, and track obligations against a funding target. The EEIC lists the commodity under the cost center, which for AVFUEL is EEIC 699. With BQ, the analyst can monitor how a flying Squadron is performing based on their funding distribution. Once all targets are loaded into BQ, they interface with a financial management system called CRIS. This system will be discussed in detail in the upcoming comparison chapter. CRIS allows analysts at all levels of Command to analyze current and prior year Air Force budgets and spend rates.

This final section of the Air Force chapter discusses the centralization of AVFUEL at one location. The information on this transformation process was drawn from information received during a telephone interview with the Financial Management flying hour analyst, at Air Force Material Command

D. AVFUEL MANAGEMENT CENTRALIZATION

Under the current system, SAF/FM sends funding for AVFUEL to each MAJCOM. Simply put, the MAJCOMs act as an intermediary between the bases and SAF/FM. The MAJCOMs then send the money out to the Wings where they load their target into BQ under a line of accounting for each aircraft. Once DFAS receives the bills from Purple Hub, they pay the bills depending on what line of accounting was assigned to that particular aircraft for each base.

Under the new system, all fuel funding is taken away from the base and centralized under one Organizational Accounting Code (OAC), OAC 87, at Wright-Patterson AFB in Ohio. In order for this process to work, 4000 lines of accounting had to be written to assign all aircraft in the Air Force inventory to one OAC.

Under this new method, all F-15s for example are listed under one Responsibility Center Cost Center (RCCC). The RCCC identifies the Mission Design Series in the Air Force accounting system. This allows for all F-15s, regardless if they are an A,B,C, or D model, to be grouped under one F-15 RCCC. With all F-15s assigned to one line of accounting, it allows for easier analysis.

Originally, it was of concern that the costs would vary depending on the location of the aircraft and the mission it flew. It was a legitimate concern. An F-16 at Shaw AFB in South Carolina will in fact cost more than an F-16 at Elmendorf AFB in Alaska. However, at the end-of-the day, all of those costs are rolled up, averaged out, and that is the Cost Per Flying hour for an F-16, regardless of it's location or mission. This process eliminates a large amount of menial analysis. If it became necessary to find a cost for a particular block number, that information could be found using the Reliability & Maintainability Information System (REMIS). REMIS is the mechanism used by the Air Force to identify which unit owns an aircraft and is uploaded daily by the Purple Hub.

Another advantage is the elimination of electronic systems at the Wing and Command levels. The Air Force is charged for each transaction in the BQ system. By eliminating the AVFUEL transactions in BQ, the Air Force was able to save money.

With in-flight refueling, the centralized OAC can also eliminate problems with erroneous charges. With the old method, a boom operator may be filling up four different models of F-16s from two different Wings and mistakenly write down a tail number incorrectly or charge one F-16 for all four of the aircraft on the AF FM 791. With the old system, this was an accounting nightmare, not to mention the time, money, and man-hours required to research and reconcile the erroneous charges. Under the new system, all F-16s fall under one Operating Budget Accounting Number (OBAN) and one line of accounting, thus eliminating the chaos of an incorrect charge.

When the lines of accounting were built, the Program Element Codes (PEC) and the Element of Expense Investment Codes (EEIC) were left alone. Additionally, the lines of accounting were built to keep OBAN and PEC integrity. In order to do this, the old

OBAN was kept and a new OBAN was created. This allows financial analysts the ability to "peel back the onion" as far as they need to in order to analyze their particular program at their desired level of detail.

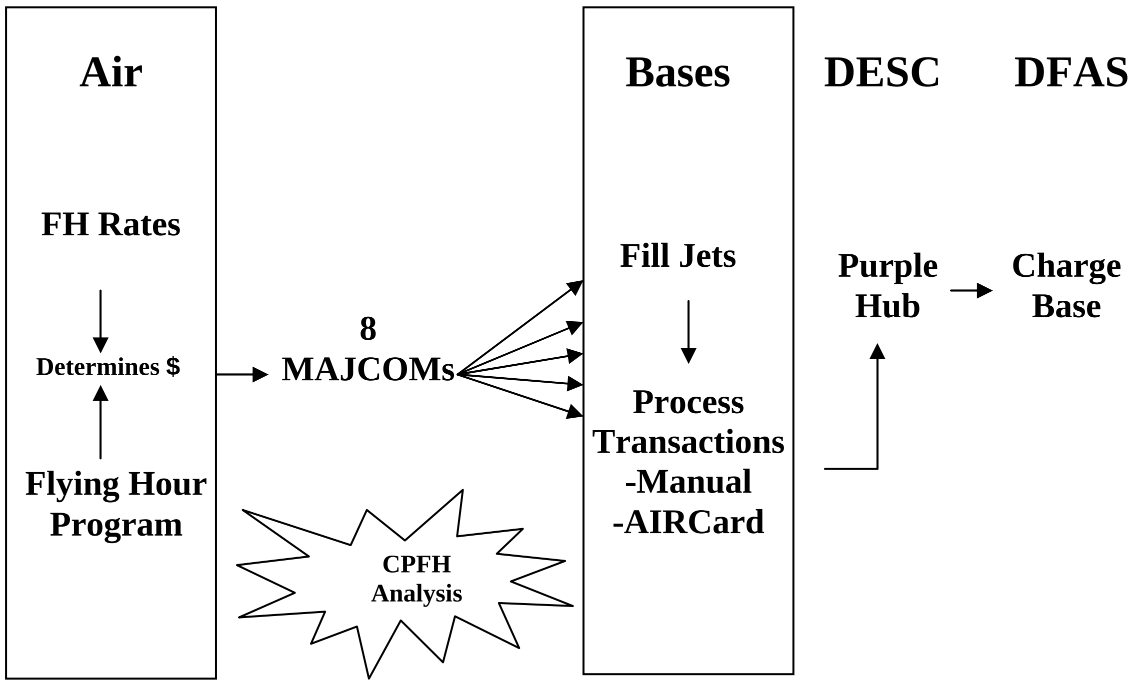
Centralization gives the Air Force great opportunities for increased efficiency. With in-flight refueling, an aircraft out on a deployment under the old system may have to wait months before it returns to its home station to turn in fuel receipt to the WRDCO. With the centralization at Air Force Material Command (AFMC), all Air Force refueling transactions are electronically transmitted to one central location. This single location minimizes discrepancies and allows for one method, as opposed to several Wings and Commands, each with slightly different ways of doing business.

This is a smarter way of doing business because it limits the times dollars have to change hands between different organizations. When a base purchases fuel, the Air Force has just paid for it. There is no reason to make a tanker pay for it a second time when it fills up at the home station and then make the in-flight tail number pay for it a third time during air refueling. It is unnecessary to make the dollars change hands so many times during the process. The same gallon of gas is being paid for several times just because it is being carried by another unit. With all the advances in technology, to include the Purple Hub, all invoices can be electronically reconciled at one central location.

If an aircrew does not have a Personal Digital Assistant (PDA) to upload the information straight into the Purple Hub, the aircraft will have a computer with the capability to burn the refueling information onto a disk to be uploaded to the Purple Hub upon mission completion.

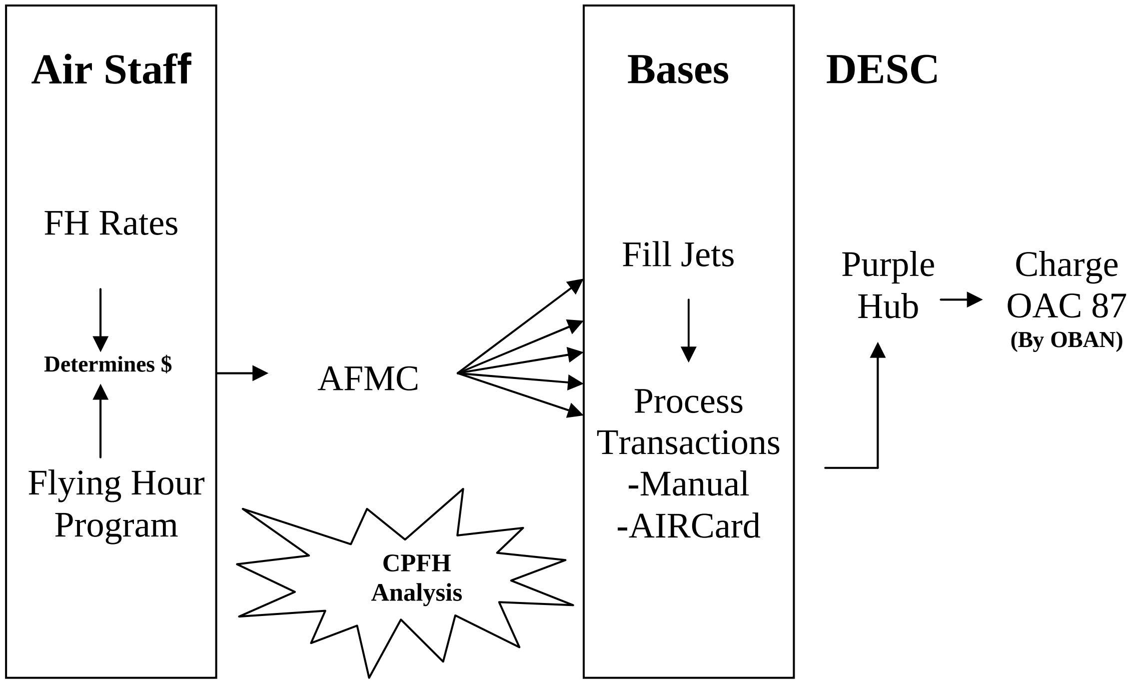
For a visual representation of the old method and the new centralized process, refer to Figure 13 and Figure 14 respectively. The first of two major differences is the change from the eight Major Commands (MAJCOMs) performing the cost per flying hour analysis to one centralized location at AFMC. The second major change is what line of accounting is billed by the Defense Finance and Accounting Service. Under the old method, each Wing was charged by DFAS. Under the new process, one

Organizational Accounting Code (OAC), OAC 87, is charged using AFMC's OBAN. To make this operation run more smoothly, the Air Force had to issue around 4000 new Identaplates to change the billing location from each individual base to the one OAC.



Source: Centralized Asset Management Program "AVPOL." PowerPoint presentation conducted by AFMC/FM

Figure 13. FY06 Fuels Process



Source: Centralized Asset Management Program "AVPOL." PowerPoint presentation conducted by AFMC/FM

Figure 14. FY07 Fuels Process Using a Centralized Location

With an Air Card and an Identaplate on every Air Force aircraft, it does not matter where it is refueled. It could be fueled on station, in-flight, by another Air Force base, another service, or by a National Guard or Reserve unit. As long as they swipe either card (in the case of in-flight refueling, the boom operator must record the correct MDS), the embossed information on the cards will allow the invoice to flow to the centralized billing location because the cards contain the line of accounting for AFMC.

E. CHAPTER SUMMARY

This chapter addressed Squadron and Command level AVFUEL budgeting and execution processes for the Air Force. Specifically, it centered on three primary methods to fuel government aircraft: on station, in-flight, and Into-plane refueling. The major focus concentrated on how the billing process worked for each method of refueling and how DFAS eventually pays the invoices. Additionally, the chapter addressed how the required hours were determined and how the funding flowed from SAF/FM at Air Staff down to the flying Squadrons.

Finally, the chapter expanded on the centralization of the AVFUEL budgeting and execution functions to one central location at AFMC. The use and benefits of CRIS by all levels of command to view transactions will be discussed in detail in the next chapters. The true advantages of centralization have yet to be determined, as the process has just begun the first quarter of FY07. The reduction in labor at the MAJCOM and Wing budgeting and accounting offices alone should be an enormous cost saver, as they no longer need to reconcile fuel costs. The benefits and cost savings are beyond the scope of this project and may be an area for further research.

IV. COMPARISON OF THE NAVY AND AIR FORCE AVFUEL BUDGETING AND EXECUTION PROCESSES

A. INTRODUCTION

The purpose of this chapter is to describe the differences between the Navy Flying Hour Program and the Air Force Flying Hour Program. Although there are several differences in the procedures and methodologies, there are also many similarities as well when comparing the Flying Hour Programs (FHP). The most noticeable points were found during the AVFUEL analysis of the FHP comparisons, which is the area of focus of this project and where this chapter will be directed. This chapter will also provide the detailed differences and similarities found in the AVFUEL portion of the FHP at both the Command level and at the Squadron levels. This comparison will also provide the readers with a better understanding of the differences in business practices of both FHPs.

B. COMMAND LEVEL

The FY funding process for the Navy and Marine Corps FHP is provided on a baseline budget via an OP-20. FMB generates the OP-20 to the TYCOM for execution and includes the baseline for the current FY FHP funding requirements. Once the OP-20 is received by the TYCOM, the funds are then distributed to the Air Wings and Squadrons based on their required flight hours for the FY. The initial funding for the FY is provided quarterly, usually based on the Squadron's prior year execution. Funding at the beginning of the FY is provided in small increments and specific instructions are provided to the Wings and Squadrons to not over execute or over obligate their initial funding due to the Continuing Resolution Authority (CRA).

The Squadrons may not be given sufficient funding during the first quarter of the FY in order for them to properly execute their required flight hours, which are operational commitments and training/proficiency requirements for the aircrews. However, the Squadrons still need to ensure they do not over obligate their quarterly funding, at least until the President approves and signs the Defense Budget, or more funding is provided to the Commands for distribution to the Squadrons. At times this can be a problem for Squadrons, staying within their funding restraints can be a stressful evolution for all involved. Constant communication between the Squadrons and the FHP managers at the TYCOM is crucial for a Squadron's success in the first quarter of the FY. The Squadrons need to provide up to date status of their execution and changing requirements while the CRA is in affect. The goal of the TYCOM is mission accomplishment and customer service, not to reduce the funding in an attempt to reduce the overall execution.

The TYCOM focuses on meeting Squadron flight hour requirements, and often authorization is provided to continue flying even though the Squadron is now operating in the red. This is only done when FMB has ensured the TYCOM relief is in sight and more funding will be provided before the closeout of the quarter. Usually this means the Congress has approved the Defense Appropriation and now only the President has to sign it, or approve a Continuing Resolution Appropriation (CRA). At this point, the funding provided in the OP-20 can now be used as a baseline for Squadron execution. At the TYCOM, the FHP funding is not held in reserve, fenced intentionally, or obligated in small increments in order to force the Squadrons to operate with less funding. This may often be the thought process for managers attempting to reduce the overall FHP execution and budget requirements with reduced funding authorizations. This is one of the minor differences discovered between the Navy and Air Force FHP during this FHP research.

In order to properly explain the difference in FHP management between the services, a brief review of the Air Force FHP is required. The funding process for the Air Force begins at the Command level when the CPH for AVFUEL is provided to the Commands by SAF/FM. SAF/FM will provide a baseline of funding, based on the previous FY CPH execution for each Mission Design Series (MDS) or Type Model Series (T/M/S).

This method of determining current FHP requirements is very similar for each service and appears to be the most accurate and effective method. However, determining or projecting future FHP requirements is a very difficult task given the viabilities associated with tactical aircraft, so using prior year execution has proven to be the current best estimating practice.

Up to this point in the management and distribution of funds, the process is very similar. At the point where funding is provided to the Command level and then distributed to the Squadrons is where the differences in FHP management occur. The Command FHP managers are provided an established CPFH for each MDS of aircraft but this is not the same level of funding that is provided at the Squadron level. The Command will determine what they believe to be the actual requirement for a particular MDS, usually a lower CHP and subsequent level of funding.

This CPH and funding level is different from what is provided by SAF/FM. The Command holds or fences a determined amount of FHP funds, based on the projected requirements for the Squadrons, in an attempt to force the Squadrons to operate at a reduced level of funding. The Commands may in fact believe the actual requirement for a Squadron is more than the distributed amount. Even after knowing the true requirement, and agreeing with the projections from SAF/FM, the Command may believe that if a lower level of funding is provided, then this method of management may compel the Squadron to reduce its execution. Forcing the Squadron to operate with less and then requiring the Squadron to justify additional operating funding when requests are made, are all done in an attempt to reduce the budget and to allow additional spending on other MDS of aircraft. Again, projections for FHP requirements are very difficult to determine, and even more difficult to be truly accurate. All projections are done using extensive analysis, from both historical data and projected operational requirements.

C. SQUADRON LEVEL

At the Squadron level, the majority of the FHP processes for both services are very similar. Funding is provided from the Command level and it is the responsibility of the Squadrons to manage their funds and to ensure they operate within those funding constraints. The funding for AVFUEL is determined by the required hours a particular Squadron must fly in order to maintain its operational commitments. These hours are then multiplied by the AVFUEL CHP to determine the actual grant that they will receive.

Usually the Command and Squadron level operations officers can collectively determine the operational flight hour requirements for a particular Squadron with reasonably high-levels of accuracy. The operations officers are constantly evaluating the proficiency requirements for their Squadron and keep in constant communication with the operations officer at the Command level. The Command level operations officer is the Squadron's liaison officer for most of the requirements at the Command level, often including funding requirements. The number of flight hours to be executed is the main language and focus between each of these program managers.

The similarities between the services at the Squadron level are mostly related to the execution and the reporting of the flying hour funds. These expenditures are monitored and tracked in relatively the same fashion for each service. Where these similarities are different, is again with the management and distribution of funds. At the Command level, the Air Force provides anywhere between six to nine months worth of funding to the Squadrons. This amount and/or duration of funding usually depends on the Command and when they receive their initial distribution of funds. This initial funding is part of the Squadron's total 12-month FHP authorization. The Squadrons are only provided their initial grant in order to monitor the execution and their need for additional funding later in the FY. As the Squadrons get closer to the end of the fiscal year, additional funds are distributed on an as needed basis.

This is another example of the similarities and differences between the services management and execution of their respective FHPs. The Navy and Marine Corps will provide the FHP funding in quarterly increments, based on the mission requirement of each particular Squadron. The Navy requires each Command and each Squadron to closeout the quarter with a zero balance and then move toward the next quarter's execution. If excess funds are found during the closeout of a particular Squadron, then the funds are adjusted to other Squadrons that may be short funding in order to properly closeout the quarter in the black. If by chance there are excess funds across the board for all Squadrons and no one requires additional funding in order to closeout, then there will be an excess of funding for the FHP for that quarter. Then the TYCOM will roll the remaining funds into the following quarter's budget. This does not happen very often, but when it does, FMB requires detailed justification. This is provided in the form of an executive summery, explaining in detail the under execution of each Squadron that did not meet its projected operational requirements. The same is also required by FMB when additional funds are required to close out a particular quarter. Justification must be submitted in detail, describing the abnormalities in the Squadron's execution that caused the over obligation of funds. This executive summary allows FMB to determine if the increase or decrease in funding is something that needs to be addressed for the following FY FHP projections. Often, these are only small spikes in the execution of FHP funds and will be adjusted throughout the overall FY execution.

D. RESOURCE MANAGEMENT AND COMPUTERIZATION

1. Navy Resource Management and Computerization

Navy Squadrons receive their monthly grants from CNAP, via Naval Message, and then report their monthly execution of those funds back to CNAP on a monthly BOR. The Squadron will include their grant amount and their execution to date on the monthly BOR. The FHP manager will review the Squadron's monthly BORs, ensuring that the amounts distributed to the Squadron is the same as was provided on the Naval Message and that the formatting is correct. The BOR will also provide the FHP manager with the detailed execution of the Squadron's funds, both monthly and Fiscal Year to Date (FYTD). This data on the BOR is loaded into ACES, an automatic process that is designed to save time and reduce manually inputting erroneous data. Once this data is loaded into ACES, it is compiled into a spreadsheet that is formatted similar to an OP-20. This is done for the ease of reconciliation and for presenting the comparison of budget and execution to higher levels of command.

CNAP is the focal point for allocating, executing and monitoring flight hour funding for all Navy and Marine Corps Pacific fleet Squadrons. Their primary goal and responsibility during allocation and execution is to achieve a specific level of readiness for each Squadron within the constraints of the resources available. (Assistant Chief of Naval Operations 1996, 41)

CNAP's primary tool for distributing flight hour funds is through the Navy Operational Plan 20 (OP-20); (refer to Appendix A). The OP-20 serves as a budgeting formulation document and an execution-monitoring tool. During budgeting, the OP-20 displays funding requirements by aircraft type, model, series (T/M/S) and becomes the Navy's primary budget exhibit displaying the FHP funding requirements during submission and review to OSD and OMB (McCaffery and Jones 1998). The OP-20 is the culmination of financial management inputs from the FHCR (refer to Appendix B) and the BOR. These two documents that make up the OP-20 are used by financial analysts at the Command level to administer and track FHP obligations during the fiscal year.

The ACES program is used at the TYCOM level only, providing the FHP managers and program analysts with detailed information regarding the execution of the FHP. The FHP managers can then utilize this information to better determine the requirements for the FY. This data can also be separated into specific areas of execution, for example, AVFEUL for a specific T/M/S. This will also allow the FHP managers to determine if the reported fluctuations in the execution for a particular aircraft are an actual concern with aircraft reliability or just an anomaly. Having this ability for detailed analysis will also allow for quicker responses and more accurate data when providing updates to FMB.

As with any other program within the Navy, ensuring the program manager has current and accurate data is always important. Maintaining credibility is important when managing programs that have the funding levels of the FHPs. The FHP receives a lot of attention and seems to be the part of the funding pie that most program managers want a piece of. If another program manager wants to get additional funding in order to get their own program start-up approved, going after larger funded programs has always been a good tactic. Because of this, the FHP manager must always have current and accurate data to best defend the program. If the data is incorrect, or believed unjustified, then that particular program may be more vulnerable.

The FHP manager at the TYCOM level must also maintain a good working relationship with the Squadrons. Even though there is a chain of command relationship between the two levels of authority, maintaining a fair and honest relationship is essential for the programs success. Ensuring each level of command has constant communication between managers and that the mangers at each level are informing the other of any foreseeable problems, instills trust and confidence in the other’s ability and dedication to the program’s success. During the analysis conducted for each level of management, trust in the abilities and commitment of the other managers was crucial. When a manager would provide his/her funding requirements, or his/her current funding status, having the trust and confidence in the reporting unit is essential for the senior program managers. This ultimately provides a more accurate report of the funding situation up the chain of command, to include the Congress.

2. Air Force Resource Management and Computerization

One difference of note is the use of the OP-20 by the Navy as opposed to the Air Force use of the OP-20. The Air Force uses a similar document called the Air Force Weapons System/Flying Hour Cost Data Report or OP-20E. The OP-20E for the Air Force is an Excel spreadsheet used solely above the Command level. It is primarily used during the POM process while determining flying hour funding for the outyears.

The Air Force does not use the OP-20E as a budgeting formulation document and execution monitoring tool. The Air Force uses an Excel spreadsheet with similar information as displayed in the OP-20, in conjunction with a resource allocation system called the Commander’s Resource Integration System (CRIS); refer to Appendix D for an example of a section of the Air Forces active duty submission.

CRIS provides Headquarters Air Force level, MAJCOM level, Wing Commanders, Financial Managers, and Resource Managers with the ability to make informed decisions concerning resource allocation through a set of decision support tools. The Commander's Resource Integration System uses advanced technologies to provide the users with analytical tools that greatly enhance visibility to data required for executive decisions.

This resource allocation system interfaces with BQ (The Air Force’s financial accounting system). At any given moment, a financial analyst at the Wing, Command, or Air Staff level can use CRIS to filter FHP information. Any information an analyst could possibly require concerning the status of flying hour budgeting and execution can be retrieved. It is now the Air Force's financial management tool of choice for the operations and maintenance budget. For an example of a report from CRIS, which was imported into Excel (refer to Figure 15).

OBAN	PEC	RCCC	EEIC (All 5)	GOBS ($K)
39	11113F	412R4H	60900	$ 0.06
39	11113F	412R4H	61952	$ 19.99
39	11113F	412R4H	64400	$ 3,067.09
39	11126F	412R4I	60900	$ -
39	11126F	412R4I	64400	$ 2,044.71
39	11127F	412R4L	64400	$ 100.00
39	28015F	302011	60902	$ 805.16
39	28015F	302011	64400	$ 8,440.57
39	28015F	302011	69900	$ 4,716.01
39	28015F	302011	69900	$ 39.21
39	28015F	302012	60902	$ 938.86
39	28015F	302012	64400	$ 6,364.61
39	28015F	302012	69900	$ 3,275.59
39	28015F	302017	60902	$ 349.96
39	28015F	302017	64400	$ 3,048.35
39	28015F	302017	69900	$ 225.04
39	28015F	3A0011	61952	$ 17.71
39	28015F	3A0011	64400	$ 170.43
39	28015F	412R11	61952	$ -
39	28015F	412R12	60900	$ 171.56
39	28015F	412R12	64400	$ 1,388.99
39	28015F	412R41	60900	$ 6.64
39	28015F	412R41	64400	$ 452.40
		Total Annual Obligations		$35,642.92

Source: FY 2005 CRIS report retrieved by Air Combat Command Flying Hour analyst

Figure 15. Monthly Wing Flying Hour Report by Commodity Using CRIS

When funding for the flying hour program is sent to the Wings at initial distribution, the flying hour analyst at the Comptroller Squadron load the target into BQ. This system, as stated earlier, interfaces daily with CRIS. At the same time, the Command level loads an identical target into a funds management system called FMSuite. FMSuite is used currently used only at the Commands because they do not have access to the Wing level BQ system.

During the fiscal year, CRIS has the ability to interface these two systems to allow the financial data in both systems to be compared side-by-side. This interface shows all transactions against a particular MDS from the beginning of the fiscal year until the end of the previous business day. These transactions include, but are not limited to, commitments, obligations, and expenses. With this data, a query can be conducted by OBAN, RCCC, and EEIC to retrieve data for a particular MDS. With this retrieved data, a number of spreadsheets and charts can be quickly developed to show numerous spend rates. For an example of a CRIS monthly Flying Hour report the Commands send to Air Staff, refer to Appendix C.

All levels of command have access to this ability using CRIS, but they only have access to their area of responsibility. The bases have access to information related to their Squadrons but they do not have access to information about other bases. Each Command has visibility of their bases, but they do not have access to information about other Commands. SAF/FM, as would be expected, can see information concerning the entire Air Force.

E. CENTRALIZATION

Centralization is a new transformational initiative implemented by the Air Force. The initiative began at the beginning of FY07. The initiative brought all Commands and Wing AVFUEL operations under one Command at AFMC. This initiative reduces the staffing and workload requirement by decreasing the necessity for reconciliation from eight Commands to one central location at AFMC.

One of the primary reasons the Air Force is able to implement the centralization process is their use of the Commander's Resource Integration System (CRIS). This system, along with the FAS, allows all levels of Command to have access to the same information. With this ability, one central location can perform the same operations formally conducted at eight Commands and numerous Wings and Squadrons.

From our personal and telephone interviews with the end users, all we spoke with agreed that this transformation initiative will make the Air Force Flying Hour Program more efficient and effective. However, until time has passed and a cost/benefit analysis is performed, the results remain to be seen. Until this study is completed, the Navy may not choose to centralize. At the same time, until the Navy adopts a financial tracking system similar to CRIS, this option may not be viable.

F. SUMMARY

This chapter covered the main similarities and differences between the Navy and Air Force FHPs, focusing on the key points of the AVFUEL management programs. While conducting this extensive analysis, it was determined the there are many similarities between the services and their programs. The most noticeable were the methods utilized in the distribution of the FHP funding from the SAF/AF and FMB level down. Also both services use prior year execution, along with operational flight hour requirements to determine the most accurate FHP projections.

Along with these similarities came an awareness of the minor differences with managing the two FHPs. Although not as many differences take place during the overall management of each FHP, there are still differences to analyze. The main issue found was the management of funds at the Command level. The method or business practices used during the management and allocation of funds at the Command level for the Air Force seemed to be directed more towards reducing costs rather than the detailed monthly analysis of the execution to determine the actual requirement. It seemed the analysis was directed more towards the basic execution and only capturing the data, rather than the efficient execution of funds for the Air Force FHP. However, both services are concerned with the execution of funds and ensuring the Squadrons receive what is actually required, as well as not having excess funding. Both services do in fact use prior year executions and the flight hour requirement from previous years to determine the current year requirements. The only real method used by both services to determine the future funding requirements is to analyze previous hours flown during each sortie. The mission and conditions during these sorties will determine the cost associated with those hours. Both services use this method and utilize their flight hour history to justify their current and future year sortie projections. The focus for both services has always been to minimize costs without significantly affecting the Squadron's abilities to accomplish their missions.

This fact is addressed in the final chapter when the overall conclusions of this research project are provided. The purpose of this chapter is to provide a better understanding of the differences and similarities between the Navy FHP and the Air

Force FHP. The focus of the chapter was also on providing the services the ability to determine the best business practices of both FHPs and to allow the services to make their own determinations with the data provided.

To conclude, the comparison for the Navy and Air Force AVFUEL FHP, it is determined by the level of analysis conducted, that each service manages its FHP in a very similar manner and with a focus on efficiency. Even though the two services are similar in their methods of receiving and executing FHP funding, there are small differences in the management and level of analysis of the programs. Only after completing the research, was it actually determined that the management of the FHP was different, but this level of difference is still very small. The Air Force's ability to use centralization and the CRIS program as a management tool allows visibility at all levels of the reporting chain. Allowing one central activity to mange the AVFUEL data for the Air Force, and by using the CRIS program to provide the data, reduces the level of oversight and manpower requirement at each level of command. These significant differences were determined from researching the two FHPs. Until the Navy implements a program similar to CRIS, it will not be able to manage the FHP more centrally in the same way as the Air Force.

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V. CONCLUSIONS

A. INTRODUCTION

The flying hour program addresses the Navy and Air Force's responsibility to provide prompt and sustained offensive and defensive air operations, which in turn contributes directly to the Defense policy goals of dissuading future military competition, deterring threats, and coercion against U.S. interests, and if deterrence fails, decisively defeating any enemy. To ensure it meets this function, many factors must be present. Of primary concern of those factors is having qualified, capable, proficient pilots. The Navy and Air Force ensure that they can fulfill that responsibility through the flying hour program.

The Navy and the Air Force budget for and execute flying hour funds in excess of $4.5B[5] and $6.5B[6] respectively, in over 8000[7] aircraft to fly millions of hours each fiscal year. More specifically, the fuel transaction procedures involved in this execution allows for the completion of routine missions with minimal errors. In addition, they allow for response to emergency missions in the US and abroad, including cross service refueling and direct purchases from civilian operations. At the end of the FY, the FHP is able to appropriately account for all of these transactions. The system does this so well that the FHP for one year is used as the basis for the next year's budgeting and execution process.

The goal of this project was to develop an in-depth understanding of the Navy and the Air Force Flying Hour Programs and ultimately an enhanced knowledge of how they budget and execute for AVFUEL. By utilizing data collected during research visits to CNAP and Nellis Air Force Base in conjunction with that collected through telephone interviews of other personnel at the Command and Squadron levels, we have made an effort to provide and analyze information that is relevant and up to date.

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5 Source: David K. Jarvis, Naval Postgraduate School: 2006 MBA Project. OPNAV N432D Responsibilities and Impact on Budget Formulation for the Navy Flying Hour Program.

6 Information received through a November 9th email with a flying hour analyst at Air Force FMB.

7 An approximation based on the combination of total Navy and Air Force aircraft inventory according to SEAPOWER and Air Force Association magazines.

By reviewing both the Navy and the Air Force FHP budgeting and execution processes we were able to put together a comparison outlining some of the similarities and differences associated with each service. During this analysis, we found programs and processes each service was currently using or implementing that could be investigated in an effort to determine best practice. This project also reviewed and analyzed the roles of the different components that participate in reporting AVFUEL usage, both up and down the chain of Command.

B. PRIMARY RESEARCH QUESTION

1. How Do the Air Force and the Navy Budget and Execute AVFUEL for Their Respective Flying Hour Programs at the Command and Wing Levels?

a. Funding from FMB

The Navy receives its funding through their operational and administrative chain of Command. The amount of funding they receive is determined by the OP-20. CNAP provides the Squadrons with their annual funding and associated projected hours to be flown for that fiscal year. The funding is then correlated to what they are authorized to fly quarterly. CNAP submits a budget request at the beginning of the fiscal year and again after the mid-year review process. The mid-year review process is simply an evaluation of the current execution at the mid-year point of the FY to determine the remaining funding requirements to close out the FY.

The Air Force has a slightly different funding process from FMB to the Commands. The Financial Management Board (FMB) of the Air Force distributes funding to the Commands using a Secretary of the Air Force (SAF) rate. This SAF rate is established using input from the Wings, Commands, and guidance from the Air Force Cost Analysis Improvement Group (AFCAIG). This process takes approximately one year from start to finish, which may cause rates to be slightly higher or lower at time of execution. This rate is used by the Commands but it is not the same rate they send to the Wings for execution. The rate sent to the Wings is based on current efficiency rates and contingencies from the prior year not expected to occur in the current year of execution. If this rate should change during the fiscal year, SAF/FM will provide the Commands with an updated rate. The Air Force also conducts a formal Flying hour execution review in August of every year. MAJCOMs that are underexecuting will have excess flying hours or funding directed to other MAJCOMs or other flying operation elements.

The Navy process seems to have less red tape in the funding process when compared to the Air Force. The fact that the rates the Commands give to the Wings is different from the rate given to them by FMB may indicate the Navy has a better method of getting the funding to where it is executed. However, the Air Force method may be more efficient. The rate given to the Commands might be more reflective of the actual amount they end up executing during the fiscal year due to the extensive research involved in establishing the SAF rate.

b. Command Level Execution

With the Navy, the number of hours allotted to the Squadrons is dependent upon several variables. These variables are based on if the Squadron is scheduled for a deployment, training and qualification requirements, and the number of aircraft assigned. TYCOM converts the hours to dollars based on the OP-20 provided by OPNAV, which states the cost per flying hour based on each T/M/S. A funding grant is provided to the Squadrons in order to financially cover all their related expenditures. The Navy and Marine Corps will provide the FHP funding in quarterly increments, based on the mission requirement of each particular Squadron. The Navy requires each Command and each Squadron to closeout the quarter with a zero balance and then move toward the next quarter's execution. Excess funds at the end of each quarter are used to fund Squadrons who are short or rolled in to the upcoming quarter's budget.

The Air Force Commands also consider variables such as scheduled deployments, training and qualification requirements when determining the number of hours to allot to each of the Wings. The most significant difference between the services is the reduction to the SAF rate the Commands distribute to the Wings. This reduced rate is based on historical information and how efficient the squadrons were with their flying hour operations. The Wings are given this reduced rate but are authorized the SAF rate if they cannot live within the funded amount. Based on interviews with Wing level analysts, this rate is normally right on target, resulting in available funding to be returned to SAF/FM at the end of the fiscal year.

The Navy process appears to be a better deal for the Wings because the funding is not held in reserve, fenced intentionally, or obligated in small increments. The Air Force process forces the Squadrons to operate with less funding and then requires them to justify additional funding as needed, as opposed to giving them what they need each quarter and then allowing them to turn in excess funding when available.

c. Squadron Level Execution

The Navy Squadrons receive their AVFUEL grant from CNAP and load the funding in a system called Aviation Storekeeper Information Tracking System (ASKIT), which is similar to a personal checkbook. This system allows the OPTAR managers and flying hour analysts at the Wings to monitor flying hour transactions and reconcile erroneous charges against the fuels automated system and the SFOEDL issued by DFAS. The Squadrons send a monthly and quarterly Budget OPTAR Report (BOR) to the Commands reflecting current execution.

The Air Force flying hour analysts at the Squadrons load the funding target into BQ and monitor funding availability and execution rates using CRIS. The Wings send a CRIS flying hour execution report to the Commands on a monthly and quarterly basis. The Wing Refueling and Document Control Officer (WRDCO) monitors all AVFUEL transactions and reconciles daily with the Fuels Automated System (FAS).

Although the computer systems and the format of reporting documents are different, the Navy and the Air Force use very similar methodologies when executing the flying hour programs at the Squadron level. Both services reconcile flying hour transactions and report execution to the Commands on a monthly and quarterly basis. The most significant difference is the CRIS system used by the Air Force. This system allows leadership at all levels to access information on a moment's notice. For example, the flying hour analysts at the Command do not have to wait until the monthly or quarterly reports to track obligation rates for Nellis Air Force base. They can run a query in CRIS and pull any execution information they desire.

d. Development of Flying Hour Requirements

Currently, the Navy budgets for flying hours based on the "sortie based planning method." In the Navy, the number of hours allotted to the Squadrons is dependent upon several variables. These variables are based on the Squadrons scheduled deployments, training and qualification requirements and the number of aircraft assigned. Whatever the hours are, TYCOM converts that to dollars based on the OP-20 provided by OPNAV, which states the cost per flying hour, by T/M/S. The responsibility of collecting and processing the CPFH data rests at the TYCOM level for the Navy. The program managers, the comptroller, and the operations officers then use the data collected from the operating units to determine and validate the unit's flying hour requirements.

The Air Force also budgets for flying hours based on the "sortie based planning method." The responsibility of collecting and processing the CPFH data and formulation of required hours rests with the MAJCOM level. The required number of hours to be flown for each aircraft is then determined by the mission of the aircraft and the training requirements of the pilots. The Air Force installation's Operations Group (OPs Group) determines the number of hours needed to complete these required missions and the amount of hours necessary to keep their aircrew qualified. The Ops Group develops a Unit Training (UTE) rate (number of training hours per crewmember) based on the number of aircrew assigned and the number of hours the Squadron needs to train and keep their aircrew proficient. These requirements along with the number of aircraft assigned are used together to determine the number of hours required for the upcoming fiscal year.

Effectively managing and tracking costs and requirements is the foundation of the budget process for both the Navy and the Air Force flying hour programs. The better both services are at tracking costs and requirements in the execution year, the better they will be at budgeting in future years. Both the Navy and the Air Force use the "sortie method" when determining the required hours to execute their respective missions. Although different in small ways, both the Navy and the Air Force are effective predictors of future flying hour requirements for their respective services, as they continue to remain proficient and dominant.

e. Accounting Procedures

Once all of the transactions are completed for a given month, the Navy Squadrons submit a Budget OPTAR Report (BOR) to the TYCOM. The information on the BOR provided by the Squadrons is then loaded into a program called the Aviation Cost Evaluation System (ACES). ACES compiles all information from the Squadron for analysis. The system not only calculates fuel costs, but it also calculates all the variables used in the cost per flying hour equation. This includes AVDLRs (repairable parts), AFM (consumable parts and maintenance), and ultimately produces the Flying Hour Cost Report (FHCR).

The Air Force uses CRIS at all levels of command to track flying hour information. Once the Commands receive their flying hour funding, the annual and quarterly targets are loaded in a financial accounting system called FMSuite, which interfaces with CRIS. The squadrons load the same funding targets in a financial accounting system called BQ, which also interfaces with CRIS, giving the analysts the ability to compare targets. CRIS gives flying hour analyst at all levels of Commands the ability to conduct current and prior year trend analysis at a moments notice.

The Air Force accounting system is similar to the Navy system, but it is different in a very important way: the ACES system of the Navy is only available to the Command level. In contrast, CRIS is available to all levels of command. This gives leadership at all levels the ability to observe all financial information under their span of control.

f. Decentralization versus Centralization

As discussed in previous chapters, the Air Force has recently centralized all AVFUEL transactions at one location effective the first day of fiscal year 2007. The Air Force will centralize all flying hour funding at AFMC effective the October 1st of fiscal year 2008[8]. Centralization is intended to allow the FHP manager and analyst to manage the entire AVFUEL process from one central location, and reduces the amount of

8 Currently, only AVFUEL is centralized in FY07. The remainder of the flying hour commodities will be centralized at the beginning of FY08. A complete year of AVFUEL centralization will be complete at the end of FY07. A complete fiscal year of centralization for the entire flying hour program will be complete at the end of FY08.

personnel involved in the everyday AVFUEL transactions. This reduction of personnel is due in part to the Air Force's use of the Commander's Resource Integration System (CRIS). It also allows for timelier reporting of fuel purchases and expenditures.

The Navy is decentralized and reconciles AVFUEL transactions at the Squadron, Wing and Command levels. Although this is an effective process, they may be able to become more efficient if they commission a group of individuals to examine the Air Forces centralization process after it has been in effect for a complete fiscal year.

C. SECONDARY RESEARCH QUESTIONS

1. What Can the Air Force and the Navy, and Ultimately the Department of Defense Learn by Comparing the Processes of the Two Services?

By comparing the FHP processes of both the Navy and the Air Force, the Department of Defense should be equipped with the quality data needed to make better decisions affecting AVFUEL funding, if the lessons derived from this analysis are put into practice. This project demonstrates that the Navy and Air Force can learn from how each other is budgeting and executing AVFUEL funding. By comparing the processes each service could then decide which one is the better business practice to emulate.

The Navy, the Air Force, and the Department of Defense can learn what the correct number of personnel needed is from the services to maintain proficient and credible AVFUEL accounting. Based on the analysis conducted for this project, one major AVFUEL modification that would help the Navy and the DoD better examine and administer the FHP is centralization of the type put into practice in the Air Force AVFUEL management process. The DoN and DoD could then determine the extent to which this change is feasible and whether it would help all branches of service.

2. Based on the Comparison, What are the Best Practices Identified to Make Better Use of Limited AVFUEL Funding?

During the comparison of the Navy and Air Force FHPs, for best practices, it was determined that the Air Force process of AVFUEL centralization along with the use of CRIS gives the Air Force the edge needed to manage AVFUEL. In order for the services to improve their FHP management efficiency, they must be willing to accept best practices of the other branches. The best practices in the Flying Hour Program are constantly updated to improve all services across the board. As discussed in this project, the Navy operates with two major Commands, CNAP, and CNAL, for the Pacific coast and the Atlantic coast operations respectively. The Air Force alternatively has made a change to centralize all AVFUEL budgeting and execution processes to AFMC. The Air Force will also centralize the remaining Flying Hour Program cost drivers in the next fiscal year.

Centralization is intended to allow the FHP manager and analyst to manage the entire AVFUEL process from one central location, and reduces the number of personnel involved in the everyday AVFUEL transactions. This reduction of personnel is due in part to the Air Force's use of the Commander's Resource Integration System (CRIS). It also allows for more timely reporting of fuel purchases and expenditures. Air Force AVFUEL centralization enables all reporting to be completed electronically, while the Navy still manually reconciles AVFUEL transactions at the Squadron level.

3. Can the AVFUEL Budgeting and Execution Processes of the Two Services Be Managed More Effectively and Efficiently Based on the Conclusions and Best Practices from the Comparison?

The Air Force and the Navy budget and execute their AVFUEL funding on a very similar basis. Granted there are small differences, but the process of determining the number of hours required to fly a particular airframe are almost identical. Both services focus on the training requirements for their pilots, the number of aircraft and pilots assigned, and their projected mission to determine the number of hours required for the upcoming fiscal year.

The Navy however can learn from the AVFUEL centralization process currently underway in the Air Force. Although the process is only a month into its transformation, it is predicted by SAF/FM and Air Force leadership that the new way of doing business will be more effective and efficient than past operations. The research done for this project indicates that centralization would at a minimum, reduce the required manning due to the decrease in transactions required at the Wing and Commands. At the same time, the final determination on whether this process is more efficient or effective will not be definitive until the process has had time to evolve and a cost/benefit analysis is completed. If savings are achieved, it is clear that the Department of the Navy should evaluate the findings at the close of FY07, to see what benefits centralization would offer.

D. AREAS FOR FURTHER RESEARCH

1. The only way to determine whether centralization of AVFEUL at one location is the best method for all the services is to wait until a funding cycle is complete. For AVFUEL, that one-year funding cycle will terminate at the end of FY07. With a complete year of data, it will be possible to analyze the program to determine whether the centralization process has a cost savings over the old Air Force status quo. Additionally, the analysis should reveal whether a significant amount of man-hours at many levels can be reduced or eliminated.

2. Once it is determined whether the Air Force has shown improvement over the old method of budgeting and execution, an analysis can be done to decide if this is the correct path for the Navy to follow, given their unique mission. As the Air Force is in its first year of AVFUEL centralization and will centralize all other commodities in FY08, the Navy needs to document the negatives and positives of the Air Force program over the next couple of years to evaluate if the program is beneficial to employ. Highlighting the areas of direct correlation between the services will help determine how to directly strengthen the Flying Hour Program and each service.

3. The Navy and the Air Force should continue to investigate diplomatic and regional relationships with foreign allied countries as sources for fuel. If the United States is continuing operations in support of foreign coalition partners, negotiations of AVFUEL supply during the operational timeframe would lessen the burden on the Department of Defense. Research can be undertaken to see what the friction points are in this process.

4. The Air Force is aggressively pursuing an alternative source of fuel for their aircraft. On the 19th of September, 2006 a B-52 at Edwards Air Force Base in California flew using synthetic oil made from a 50-50 blend of traditional crude-oil based fuel and a Fischer-Tropsch fuel derived from natural gas, while the remaining six engines ran on traditional JP-8 jet fuel (Air Force Press release, 2006). This could be a source of

AVFUEL conservation the Navy may want to pursue to reduce costs. Research could be undertaken to see what the benefits and risks are to undertaking this approach.

5. The Navy, the Air Force, and the Department of Defense can compare the historical data figures given by both the Navy and the Air Force finance departments to see who is improving AVFUEL efficiency more rapidly. In making this comparison, the military departments, services, and Department of Defense can ultimately determine which AVFUEL process, or parts thereof, is more efficient.

6. Research could be undertaken to see if there would be advantages to the DON to adopt the Air Force CRIS system and what this would entail in start-up and continuing costs.

APPENDIX A

OP-20

Summary Level — **Fiscal Year: 2005**

Analysis of Navy Flying Hour Program — **OP-20 Version: 1664**

	Forces	Hours	Cost Per Hour: Fuel	AVDLR	Maint	Contract	Other	Total	Annual Costs ($000): Fuel	AVDLR	Maint	Contract	Other	Total	BPH
FRS NAVY															
0204156N															
EA-6B	20	7,936	1,659.16	4,410.49	1,773.75	34.37	0	7,877.77	13.167	35.002	14.076	0.273	0	62.518	29.047
FA-18B	4	1,164	1,447.02	1,962.79	1,263.58	69.45	0	4,742.84	1.684	2.285	1.471	0.081	0	5.521	25.333
FA-18C	12.5	5,013	1,540.75	4,301.78	1,302.41	69.45	0	7,214.39	7.724	21.565	6.529	0.348	0	36.166	26.974
FA-18D	17	5,000	1,551.26	3,069.65	1,399.42	69.45	0	6,089.78	7.756	15.348	6.997	0.347	0	30.449	27.158
FA-18E	8	4,536	2,188.78	1,207.72	625.73	0	0	4,022.23	9.928	5.478	2.838	0	0	18.245	38.319
FA-18F	25	13,995	1,570.17	792.87	783.31	32.95	0	3,179.30	21.975	11.096	10.962	0.461	0	44.494	27.489
T-34C	4	1,663	48.04	1.47	92.77	0	0	142.28	0.08	0.002	0.154	0	0	0.237	0.841
UC-12B	1	536	125.78	0	0.44	518.66	0	644.88	0.067	0	0	0.278	0	0.346	2.202
0204156N Total	**91.5**	**39,843**	**1,565.69**	**2,278.35**	**1,079.95**	**44.88**	**0**	**4,968.87**	**62.382**	**90.776**	**43.029**	**1.788**	**0**	**197.975**	**27.411**
0204262N															
MH-60S	12	6,508	166.16	1,247.22	263.84	0	0	1,677.22	1.081	8.117	1.717	0	0	10.915	2.909
S-3B	18	3,831	592.39	6,112.92	1,311.32	0	0	8,016.63	2.269	23.419	5.024	0	0	30.712	10.371
SH-60B	10.5	5,740	186.95	2,721.59	991.5	66.91	0	3,966.95	1.073	15.622	5.691	0.384	0	22.77	3.273
SH-60F	16	5,711	194.09	2,796.34	857.31	67.15	0	3,914.89	1.108	15.97	4.896	0.383	0	22.358	3.398
0204262N Total	**56.5**	**21,790**	**253.89**	**2,897.08**	**795.23**	**35.23**	**0**	**3,981.43**	**5.532**	**63.127**	**17.328**	**0.768**	**0**	**86.755**	**4.445**
FRS SQDNS Total	***148***	***61,633***	***1,101.91***	***2,497.10***	***979.29***	***41.47***	***0***	***4,619.77***	***67.914***	***153.904***	***60.357***	***2.556***	***0***	***284.73***	***31.856***

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APPENDIX B

Certified Flying Hour Cost Report
September 2005

			Annual Cost Per Hour							**Annual Costs (Dollars in Millions)**					
	Forces	**Hours**	**Fuel**	**AVDLR**	**Maint**	**Contract**	**Other**	**Total**	**Fuel**	**AVDLR**	**Maint**	**Contract**	**Other**	**Total**	**BPH**
FRS NAVY															
0204156N															
EA-6B	14.2	7,724	1,690.91	3,027.98	1,565.03	46.61	0	6,330.52	13.061	23.389	12.089	0.36	0	48.898	27.538
FA-18B	4	848	1,610.46	2,414.08	1,543.39	0	0	5,567.93	1.365	2.046	1.308	0	0	4.719	23.015
FA-18C	23.2	4,857	2,004.82	2,610.88	1,360.55	0	0	5,976.24	9.736	12.68	6.608	0	0	29.024	31.696
FA-18D	18	6,252	1,671.91	1,600.10	1,077.75	0	0	4,349.77	10.452	10.004	6.738	0	0	27.194	26.581
FA-18E	13.8	3,816	2,006.40	2,270.17	1,253.18	196.02	0	5,725.77	7.656	8.663	4.782	0.748	0	21.85	32.857
FA-18F	29.8	13,112	1,804.21	1,644.87	621.57	202.87	0	4,273.53	23.656	21.567	8.15	2.66	0	56.033	28.779
T-34C	9	1,860	52.3	0	5.69	685.71	0	743.71	0.097	0	0.011	1.276	0	1.383	0.826
0204156N Total	**111.9**	**38,468**	**1,716.36**	**2,036.71**	**1,031.63**	**131.11**	0	**4,915.81**	**66.025**	**78.348**	**39.685**	**5.044**	0	**189.101**	**27.467**
0204262N							0						0		
MH-60S	12	6,795	175.68	713.5	361.94	0	0	1,251.12	1.194	4.848	2.459	0	0	8.501	2.82
S-3B	15.3	3,776	640.84	2,798.45	952.37	0	0	4,391.66	2.42	10.566	3.596	0	0	16.582	10.091
SH-60B	13	4,384	200.34	2,205.82	640.79	389.28	0	3,436.23	0.878	9.669	2.809	1.706	0	15.063	3.182
SH-60F	14.4	5,448	217.93	3,081.39	1,031.85	0	0	4,331.17	1.187	16.786	5.621	0	0	23.594	3.466
0204262N Total	**54.8**	**20,401**	**278.35**	**2,052.28**	**710**	**83.64**	0	**3,124.27**	**5.679**	**41.869**	**14.485**	**1.706**	0	**63.739**	**4.416**
FRS SQDNS Total	***166.7***	***58,869***	***1,218.01***	***2,042.10***	***920.17***	***114.66***	0	***4,294.95***	***71.703***	***120.217***	***54.17***	***6.75***	0	***252.841***	***19.478***

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APPENDIX C

			Hours Flown												
Command	**PE**	**MDS**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Total**
ACC	11113F	B052H0	2141.0	2238.4	1,742.0	1,889.0	2408.9	2409.3	2168.3	1870.5	1547.6	1296.0	1665.2	1376.2	22752.4
ACC	11126F	B001B0	1372.1	1421.0	948.3	1,262.2	1098.8	1628.8	1201.4	2015.7	2286.1	2192.8	2214.6	1701.4	19343.2
ACC	11127F	B002A0	513.9	557.6	549.9	535.2	535.9	476.9	533.7	610.7	692.9	694.3	782.4	419.6	6903.0
ACC	27130F	F015C0	2,816.6	2144.9	1,593.5	2,218.2	1874.3	2450.3	2029.5	1755.0	1901.9	1905.6	2087.2	1556.9	24333.9
ACC	27130F	F015D0	207.8	172.9	178.7	115.4	101.8	146.1	143.9	113.3	149.4	173.1	147.7	144.2	1794.3
ACC	27131F	A010A0	2,160.6	2315.7	2,376.1	1,819.9	1304.9	1705.1	1518.1	1456.8	1151.0	1171.0	1525.6	1485.4	19990.2
ACC	27133F	F016C0	4,378.7	3943.6	3,209.8	5,291.9	4912.0	5373.4	5320.5	6032.3	6154.5	6151.1	6875.3	4965.4	62608.5
ACC	27133F	F016D0	400.7	363.7	291.5	344.7	372.4	537.1	515.7	416.7	452.0	515.9	528.5	248.2	4987.1
ACC	27134F	F015E0	1,673.8	1673.0	1,001.1	2,263.3	2739.5	3132.5	2871.3	2738.1	2693.8	2976.1	3089.0	1798.3	28649.8
ACC	27138F	F022A0	205.1	223.9	194.6	240.2	258.5	376.4	375.1	589.7	824.4	441.2	561.4	474.9	4765.4
ACC	27141F	F117A0	854.5	869.4	749.9	983.3	868.2	978.5	779.9	653.5	818.3	797.1	759.8	576.1	9688.5
ACC	27218F	F015C0	0.0	0.0	3.5	28.0	42.3	40.0	19.2	52.3	61.8	36.8	99.9	37.7	421.5
ACC	27218F	F015D0	0.0	0.0	0.0	2.4	21.8	9.3	56.9	36.0	5.8	22.0	72.5	30.1	256.8
ACC	27218F	F016C0	230.1	262.1	236.6	344.5	384.7	215.1	313.1	307.0	250.9	118.8	497.2	154.0	3314.1
ACC	27218F	F016D0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ACC	27253F	C130HE	701.0	739.1	772.5	795.7	767.8	917.7	809.2	887.7	778.6	766.7	795.0	717.1	9448.1
ACC	27253F	TC-130H	73.2	84.2	78.4	46.0	57.4	49.5	49.2	56.2	41.5	14.2	39.3	9.5	598.6
ACC	27417F	E003B0	846.4	921.7	733.9	924.2	893.4	1005.0	754.8	837.0	925.4	884.6	877.6	767.5	10371.5
ACC	27417F	E003C0	342.1	306.1	229.7	405.0	225.5	271.9	408.3	255.5	278.4	273.7	360.9	156.7	3513.8
ACC	27418F	A010AO	810.7	676.5	431.5	490.4	466.1	553.5	669.8	980.4	598.0	591.6	769.3	919.1	7956.9
ACC	27597F	A010A0	1094.9	1012.3	1,034.3	1,119.4	1209.7	1269.8	1091.2	1160.3	1078.1	809.6	1204.9	692.7	12777.2
ACC	27597F	A010AO	560.5	645.8	515.1	484.8	473.1	494.3	657.6	647.0	700.6	581.3	659.7	466.9	6886.7
ACC	27597F	F015C0	155.3	166.8	100.3	115.4	100.2	168.1	182.7	211.9	168.7	144.4	171.6	84.7	1770.1
ACC	27597F	F015D0	16.3	8.3	15.7	4.4	8.5	14.8	0.0	1.4	0.0	0.0	7.3	11.1	87.8
ACC	27597F	F015E0	1072.5	1067.7	892.0	1,136.8	942.1	1198.2	1127.8	1071.6	1029.3	962.0	1054.6	876.8	12431.4
ACC	27597F	F016C0	505.4	407.1	240.8	393.2	408.0	555.0	576.8	551.4	394.5	409.8	558.9	442.3	5443.2
ACC	27597F	F016D0	220.8	168.9	110.7	128.0	102.6	198.1	135.8	192.5	146.5	129.3	143.1	143.7	1820.0
ACC	27597F	F117A0	131.5	116.9	134.5	145.6	129.4	139.8	133.9	115.2	169.6	164.1	133.0	91.8	1605.3
ACC	27597F	T038A0	722.9	558.8	590.3	710.0	621.0	734.4	663.2	708.1	635.0	534.7	696.2	477.2	7651.8
ACC	28015F	A010A0	77.5	118.1	120.6	140.3	103.5	94.6	117.8	195.2	106.5	133.7	231.7	102.8	1542.3
ACC	28015F	E009A0	39.5	51.2	32.0	36.6	70.0	80.1	63.4	61.0	53.5	54.3	63.9	41.5	647.0
ACC	28015F	F015C0	161.2	147.9	109.8	107.7	168.0	233.8	137.7	156.2	170.3	133.9	185.8	151.9	1864.2
ACC	28015F	F015D0	33.4	56.2	18.2	38.8	41.1	36.6	29.9	29.7	33.6	18.8	14.7	7.3	358.3
ACC	28015F	F015E0	113.3	115.7	82.0	118.7	99.0	131.8	148.9	141.3	134.7	113.0	163.1	129.8	1491.3
ACC	28015F	F016C0	214.3	244.3	226.9	199.9	232.2	246.7	292.7	167.3	180.9	172.4	203.1	156.3	2537.0
ACC	28015F	F016D0	63.4	52.8	54.4	98.6	62.4	78.7	82.4	72.6	77.4	78.4	106.3	35.0	862.4
ACC	28015F	F022A0	195.9	189.2	153.7	96.8	85.7	92.6	121.7	112.8	121.8	79.2	133.0	95.3	1477.7
ACC	28015F	F117A0	35.6	28.4	28.8	32.2	20.9	30.8	27.6	20.3	17.8	17.6	18.4	8.5	286.9
ACC	31314F	C135SR	57.2	72.7	94.0	88.3	49.2	120.9	77.7	162.2	110.1	85.6	63.1	104.4	1085.4
ACC	31314F	C135ST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ACC	31314F	C135WT	31.3	25.3	48.7	75.5	41.6	89.5	45.0	0.0	64.6	47.3	65.2	84.6	618.6
ACC	31314F	C135CW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

			Hours Flown												
Command	**PE**	**MDS**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Total**
ACC	31324F	C135VW	26.6	47.0	4.7	26.6	36.9	34.4	31.1	41.1	39.8	33.5	30.8	28.3	380.8
ACC	31324F	C135WW	10.6	16.1	2.2	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.4
ACC	32015F	E004B0	162.9	162.1	142.2	167.1	158.1	118.0	81.6	113.8	222.8	161.6	157.1	107.7	1755.0
ACC	35145F	C135BO	51.7	40.1	63.0	82.6	64.6	128.1	92.1	62.5	75.4	125.4	113.9	107.6	1007.0
ACC	35202F	T038A0	311.7	330.5	250.0	321.9	344.2	399.4	322.2	313.0	392.7	341.6	423.4	215.4	3966.0
ACC	35207F	C135UR	39.1	96.8	79.0	17.1	76.8	106.2	44.4	88.6	88.8	47.5	82.7	68.5	835.5
ACC	35207F	C135VR	632.8	572.6	753.3	806.4	650.0	626.8	537.0	678.7	700.0	683.9	852.2	929.8	8423.5
ACC	35207F	C135WR	252.4	291.2	208.1	209.3	278.7	220.8	347.1	314.7	224.1	187.8	210.3	185.1	2929.6
ACC	35207F	C135WT	206.0	124.6	162.0	224.7	100.9	208.9	158.4	11.3	206.7	181.4	139.1	194.2	1918.2
ACC	35207F	TC-135S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ACC	35207F	WC-135C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Monthly Hours		26924.80	25849.20	21588.80	27127.70	26012.60	30127.60	27865.60	29066.10	28956.10	27454.70	31635.50	23579.50	326188.2
	Cumulative Hours		26,924.8	52,774.0	74,362.8	101,490.5	127,503.1	157,630.7	185,496.3	214,562.4	243,518.5	270,973.2	302,608.7	326,188.2	

APPENDIX D

Component	TreasuryCode	SAG	ProgramElement	WeaponSystemType	WeaponSystemDetail	FY2006	FY2007
Active	O&M	011A	0101113F	B052H0	Fuel Funded	264490	125669
Active	O&M	011A	0101126F	B001B0	Fuel Funded	118369	124226
Active	O&M	011A	0101127F	B002A0	Fuel Funded	24871	24067
Active	O&M	011A	0207130F	F015C0	Fuel Funded	126920	143037
Active	O&M	011A	0207130F	F015D0	Fuel Funded	11588	14534
Active	O&M	011A	0207130F	F015E0	Fuel Funded	972	0
Active	O&M	011A	0207131F	A010A0	Fuel Funded	56334	35999
Active	O&M	011A	0207133F	F015E0	Fuel Funded	43460	0
Active	O&M	011A	0207133F	F016C0	Fuel Funded	241643	215354
Active	O&M	011A	0207133F	F016D0	Fuel Funded	16043	12908
Active	O&M	011A	0207134F	C135RK	Fuel Funded	527	0
Active	O&M	011A	0207134F	F015E0	Fuel Funded	198486	163420
Active	O&M	011A	0207134F	F016C0	Fuel Funded	1334	0
Active	O&M	011A	0207138F	A022AF	Fuel Funded	59539	63300
Active	O&M	011A	0207138F	C130HE	Fuel Funded	1992	0
Active	O&M	011A	0207138F	F022A0	Fuel Funded	0	0
Active	O&M	011A	0207141F	F117A0	Fuel Funded	27878	17708
Active	O&M	011A	0207142F	F035A0	Fuel Funded	0	0
Active	O&M	011A	0207969F	A010A0	Fuel Funded	1849	0
Active	O&M	011A	0207969F	C026B0	Fuel Funded	65	0
Active	O&M	011A	0207969F	C130NH	Fuel Funded	1162	0
Active	O&M	011A	0207969F	C130PM	Fuel Funded	237	0
Active	O&M	011A	0207969F	F016C0	Fuel Funded	50332	0

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LIST OF REFERENCES

Air Force Materiel Command Flying Hour Analyst. 2006. Centralized Asset Management Program "AVPOL." Microsoft PowerPoint presentation.

Cilento, John. 2005. ACC Flying Hour Program Management. PowerPoint presentation
General Accounting Office. 1999. "Defense Budget: Observations on the Air Force Flying Hour Program." GAO/NSIAD-99-165: B-282754. Washington, DC: U.S. Government Printing Office.

Glenn, Walter H., and Eric E. Otten. 2005. Commander Naval Air Forces (CNAF) Flight Hour Program: budgeting and execution response to the implementation of the fleet response plan and OP-20 pricing model changes. MBA Project. Naval Postgraduate School, Monterey, CA.

Jarvis, David K. 2006. OPNAV N432D Responsibilities and impact on budget formulation for the Navy flying hour program. MBA Project, Naval Postgraduate School, Monterey, CA.

Keating, P.J., and D.A. Paulk. 1998. Examination of the Flying Hour Program (FHP) budgeting process and an analysis of Commander Naval Air Forces Pacific (CNAP) FHP under-funding. MBA Project, Naval Postgraduate School, Monterey, CA.

McCaffery, J.L., and L.R. Jones. 2001. *Budgeting and financial management in the federal government. (Volume 1 in the series research in public management)*. Greenwich, CT: Information Age Publishing.

McCaffery, J.L., and L.R. Jones. 2004. *Budgeting and financial management for national defense*. (A Volume in research in public management). Greenwich, CT: Information Age Publishing.

Office of the Chairman, Joint Chiefs of Staff. 2005. The national military strategy of the United States of America. http://www.defenselink.mil/news/Mar2005/d20050318nms.pdf#search=%22national%20military%20strategy%20%22 (accessed 18 October 2006).

Personal interview with Flying Hour Program staff member, Nellis Air Force Base, Las Vegas, NV, 22 September 2006.

Personal interview with Flying Hour Program staff member, Commander Naval Air Forces Pacific, San Diego, CA, 04 August 2006.

Rose, P. A. Jr. 1997. Cost per flying hour factors: a background and perspective of how they are developed and what they do. *The Air Force Comptroller*. 31: 4-9.

Telephone interview with Flying Hour Program staff member, Commander Naval Air Forces Pacific, San Diego, CA, 14 August 2006.

Telephone interview with Flying Hour Program staff member, Air Force Materiel Command, Wright-Patterson Air Force Base, Dayton, OH, 30 October 2006.

Telephone interview with Flying Hour Program staff member, Minot Air Force Base, Minot, ND, 24 October 2006.

Telephone interview with Flying Hour Program staff member, Air Combat Command, Langley Air Force Base, Hampton, VA, 26 October 2006.

Telephone interview with Flying Hour Program staff member, Secretary of the Air Force for Financial Management and Budget (SAF/FMB), Washington, D.C., 9 November 2006.

Unknown Author. 2006. The Air Force in facts and figures, Air Force Almanac. *Air Force Association Magazine*. http://www.afa.org/magazine/may2006/0506structure.pdf (accessed 26 November 2006).

Unknown Author. 2006. United States Navy organization and missions, Seapower Almanac. *Seapower Magazine*. 49: 1.

Van Kleef, Deborah L. 2006. The aviation Into-plane reimbursement (Air) card program. Microsoft PowerPoint presentation.

Wiley, G. Jr., and T.J. Dick. 1997. Cost-per-flying-hour program: A foundation for Wing cost reduction," *TIG Brief*. 49: 17-19.

Woodbury, Mark. 2006. B-52 tests alternative jet fuel. Air Force Press Release. Release No. 070906. http://www.af.mil/news/stroy_print.asp?storyID=123027415 (accessed 17 October 2006).

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